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ABSTRACT

This environmental education curriculum guide was developed for teacher use at the senior high school level. Although the guide deals with the socio-cultural aspects of the environment, it is designed to encourage an integration of the disciplines into an inter-disciplinary approach. The volume consists of a set of ideas, activities, and opinions which will help teachers and students generate a positive approach to the environment. The guide is divided into the following seven units: Earth Thoughts, which deals with attitudes, their identification, variety, and selection; Quality of Life, which concerns the process of valuation; Environmental Inventory, which focuses on historical influences, their impact and importance; Environmental Management, which identifies how a community deals with the management of the environment; Politics of Environment, which involves student participation in solving environmental problems; Community Problems, which looks at the socio-cultural aspects of the community; and Futurism, which considers what people of the past and present felt about the "future." Each unit contains an introduction, stating the purpose and background, instructional objectives, experiences, and references. The experiences of each unit are based on an objective which relates to the subject of the unit. Several activities are included in each experience. (TK)

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Environmental Learning Experiences

Socio-Cultural Senior High School

Prepared by
Center for the Development
of Environmental Curriculum
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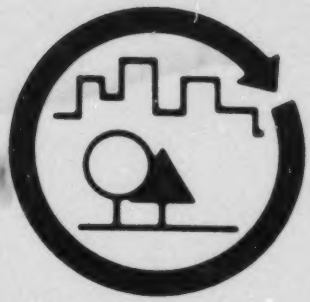

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INTRODUCTION

> Here is this vast, savage, howling mother of ours, Nature, lying all around, with such beauty, and such affection for her children, as the leopard; and yet we are so early weaned from her breast to society, to that culture which is exclusively an interaction of man on man - a sort of breeding in and in, which produces . . . a civilization destined to have a speedy limit.
>
> *Henry David Thoreau*
> (Bode, Carl (ed.), "Walking." Viking Portable Library, p. 621)

Environmental education is an integrated educational process which is only beginning to become a part of our educational institutions. What environmental studies there have been, have been relegated largely to science and elementary teachers, as ecology. The path of ecology (a word popular only since *Silent Spring*) is a noble one, but often unsuccessful in its attempts to create an environmental awareness that is vitally needed to turn our growing environmental dilemmas around. The environmental movement, if it can be called such, is already laced with comfortable cliches and a bumper sticker commerciality which is making hay while the spirit of Naderism rides high, as if taking advantage of a fleeting public fancy. Well-meaning environmental groups are experiencing financial and legislative setbacks, a result of an apathy fostered by ignorance, social-cultural pressures, and a mindless economy, spawned by the superficial concept of goodness in growth.

If environmental education is taken per se, we have been engaged in the process since our ancestral beginnings. But within a very short space of time, the lessons of the environment have been lost, or fall on ears that can no longer hear We have been steadily engaged in a flight from our real environment to an artificial one. This has been due to a faith in technology that has been blind, and demonstrated to be without limits or qualifications. This is one important reason why environmental education should be a total interdisciplinary approach which focuses upon the means of bringing us back in touch with the real environment. It should be an education which permits the experience of feeling ourselves as an intricate, inescapable part of the web of all life. We must recognize that we function within a delicate balance that requires a caring concern for life and gentle attitudes about the earth that will make us worthy stewards of the land.

Man is a part of the environment, as is the most insignificant form of life, and must derive his basic needs from the same tenuous flow of energy which sustains our entire ecosphere. He has adapted in accordance with the great constructors of change — the environment and heredity — and has met the rigors of survival to the point where his success has become dominion. He has engaged, through his superior intelligence, in an inexorable technocracy which has removed him beyond the realm of real contact with the web of life itself. For these reasons he has altered the environment more than any other living thing.

The significance of our life-ties to the earth has been diminished with the superficiality of plastic and throw-away cultures enraptured with mindless growth. Our tin can technology is in evidence even in mid-ocean. The limits seem to be at hand and a new philosophy, armed with meaningful understanding of the problems we face, is imperative.

It is important that those who have inherited our problems will be able to take a total world view of our deteriorating environment and be able to detect and sift through the obstacles that seem to shackle our present efforts because they will inherit the responsibility of providing solutions. Environmental education can not be approached from any one discipline but must draw upon the entire spectrum of man's ability to express his feelings and throughts. Science is one means of perceiving and interpreting our environment but it is useless without confronting the political, social-economic aspects and empty without the richness of art, philosophy, poetry, and music which have spoken eloquently of man's relationship to the earth.

The Center for the Development of Environmental Curriculum has developed a set of volumes which gives the teacher an opportunity to draw from many disciplines in an effort to bring environmental education to our institutions through as many avenues of learning as possible. The CDEC curriculum volumes have been written by environmentalists and educators from as many areas of education as possible. Each unit may be utilized separately or in conjunction with other units. Although each volume represents a particular theme in a certain area and level (e.g. Earth Thoughs - Biophysical - Senior High), the entire curriculum is designed to encourage an integration of the disciplines into an inter-disciplinary approach. The volumes may be used also, as supplementary guides to activities in any area. It is hoped that the volumes can be viewed as a flexible set of ideas, activities, and opinions which will help teachers and students generate ideas and activities into meaningful educational experiences. They are resources which will enable those who use them to develop a way of thinking and feeling about nature, and it may provide the chance to help clarify our environmental values into sound models for action.

We are in the midst of environmental problems which leave us confused and frustrated in the maelstrom of pros and cons concerning our dilemma. That we are experiencing a steadily deteriorating environmental condition is beyond any doubt. The solutions are not easy. But if you have experienced the flow of water, fresh and cold over your body as it courses through some green mountain valley on its way to the sea, knelt in the cool, damp earth and clutched its rich smell to your face, or watched a Blue Heron in slow flight at sunset, you know it is worth saving. All the care, concern, and love for all life and its necessary place within the intimacys of our "tiny spaceship" is in those knowing moments. At those times we are in touch with the ages of all life's experience. Man is the only creature capable of contemplating his own death; only man can develop an environmental ethic that is futuristic and healing.

Ronald J. Yarian
Concerned Educator and Citizen

EARTH THOUGHTS

Since the beginning of man's existence, he has interacted with his environment. His philosophy and art has concerned itself primarily with exploring and expressing his relationship to this environment.

A common thread running through Western culture is the belief that man is able and indeed should have dominion over his environment, that he should control and manipulate it to his own ends. Within the past four hundred years, our tradition has developed the powerful tools of science and technology to accomplish that end.

Especially within the United States the choice combination of abundant resources and culture have combined to project this tradition to its ultimate consequences. We have grown to see ourselves as separate and essentially independent of our environment. It is not something of which we are a part, but something to be directed and manipulated to conform to our desires and plans. Yet, hitherto we have seldom even considered, much less questioned, our desires and plans.

The resulting situation of raped land, dwindling resources, and alienated people is increasingly apparent. If we do not change by choice, the environment upon which we depend will compel us to change.

This unit has three main objectives: to make the student aware of his own attitudes toward his environment; to provide him with the opportunity to appreciate alternative views; and to offer the opportunity to choose how he will relate to his environment and act upon his choices.

The activities included are intended as models and suggestions of things to try. It is expected they will be modified to fit whatever situations develop. Each teacher and class is different and must make the unit relevant to their needs.

Currently, environmental issues are fashionable; most people know how to make the "right" responses. Yet, if the issue is to be dealt with in any real way, the student and teacher must become aware and concerned with the real complexities and problems. Not everyone will be concerned, and if they are not, that must be acceptable.

INSTRUCTIONAL OBJECTIVES

1. The student will be exposed to a variety of positions, both past and present, concerning man's relationship to his environment.
2. The student will begin to assess his own environmental values.
3. The student will examine various philosophies as exemplified in the life and writing of selected individuals and the media.
4. The student will discover community attitudes concerning those actions.
5. The student will compare the attitudes with the actions of the community.
6. The student will examine his own lifestyle and the attitudes toward the environment it unconsciously supports.
7. The student will re-examine his views about the earth.
8. The student will hopefully develop his own environmental philosophy.

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DEVELOPMENT OF THIS UNIT

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EXPERIENCE #1:
EXAMINATION OF PERSONAL ENVIRONMENTAL VALUES

OBJECTIVES

The student will begin to assess his own environmental values.

ACTIVITY A: IDENTIFICATION OF THE PERFECT ENVIRONMENT

Have each student express in some creative way his idea of a perfect living situation. The student may choose whatever medium he finds most suitable: writing an essay, story, or play; drawing pictures; making a collage of photos; playing music. Possible considerations: how large a site would he have?; where would the site be located?; if he altered it, how would he do it?; what conveniences would he have?; which people would be included?; what form of transportation would he use?; etc. After the students have determined their preferences, have them group themselves according to preference. When they have thus formed similar groups or "communities," have each group present the reasons for its choice to the class. The ensuing discussion should clarify the various attitudes of the students toward their environments. Indeed, the word "environment" should not be introduced without discussion and definition; it is used so often and has such a broad meaning that it may easily become meaningless.

Further insight may be developed by having volunteers complete the following statement in public: "In this activity, I learned that . . ."

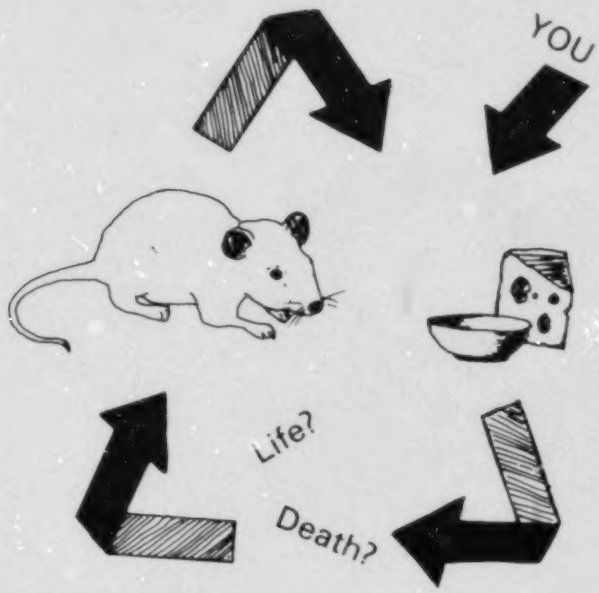
Materials:
magazines with photos for collage making
crayons
pencils

ACTIVITY B: JOURNAL

Have the students keep a private journal of their Earth Thoughts. This journal is for keeping a record of their feelings, ideas, learning, etc. throughout the course. The journal is private, and they need only reveal what they feel comfortable revealing. For example, they could record what they learned about themselves from Activity A or what the word "environment" means to them.

ACTIVITY C: ENVIRONMENT: IS IT OTHER PEOPLE?

Have the students keep a list of all the people they contact and speak to in one day. At the end of the day, have the students divide these people into groups of how important these people are to them: Influence me greatly; Influence me sometimes; Don't influence me; Turn me off. Ask them these questions: Who is in your personal environment? How do these people determine your environmental values? Have the students explain the reasons why they are thus influenced. To what extent are these people in the student's personal environment; how do they help determine his environmental values?



ACTIVITY D: DEPENDENCE = CONCERN?

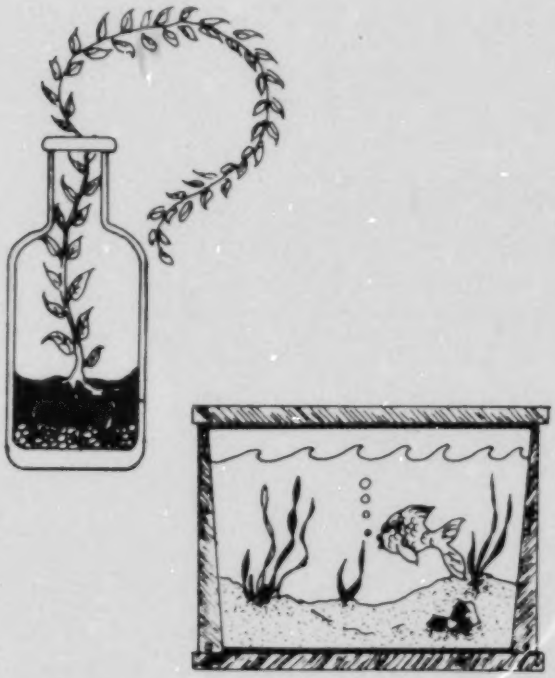
Have each of the students adopt a small animal or buy a potted plant. Each student is told that he is responsible for that animal or plant; he is a god to that animal or plant, and he can control that animal's or plant's success. Have him keep the plant or animal throughout the unit, telling him that the plant or animal will be important to the end of the unit.

ACTIVITY E: SURVEY OF ENVIRONMENTAL VALUES

Another approach to self-awareness is the questionnaire. Rather than present questions that have obvious answers, try to pose more open ended ones.

Some examples:

1. Would you prefer to have many general friends or a few close friends?
2. Would you prefer going on a vacation in Las Vegas or to Glacier National Park?
3. Are you more like an Indian or an industrialist?
4. When you are having troubles, do you prefer talking them out with friends or keeping them to yourself?
5. Would you want to be more like a Volkswagon or a Buick?
6. Are you more like a throwaway can or a returnable bottle?
7. Would you rather have money or friends?



ACTIVITY F: TERRARIUM AND AQUARIUM

Have students divide into groups to construct a terrarium or an aquarium. The object of this activity is to have the students examine an ecosystem. See Appendix A for instructions for constructing a terrarium.

The concept of a finite ecosystem seems to be essential to developing a philosophical attitude toward the environment. The analogous nature of the student looking at a terrarium and of the astronaut gazing upon the earth is too obvious to be neglected. Here is a perfect way for the student to visualize the "spaceship earth" in miniature. He can clearly see the results of an imbalance of the system.

ACTIVITY G: COMMONER'S LAWS

Barry Commoner, the ecologist, has delineated four laws of ecology which a terrarium clearly illustrates:

1. *Everything is Connected to Everything Else*
   In an ecosystem all elements contribute to the whole. If one element gets out of balance and the system can not compensate, the system collapses.
2. *Everything Must Go Somewhere*
   In an ecological system there is no waste. What is excreted by one element is utilized by another. If this does not occur, the balance is lost and the system soon collapses.
3. *Nature Knows Best*
   The evolution of ecosystems has proceded because nature has known best and the system has survived through time.
4. *There is No Such Thing As A Free Lunch*
   Any gain is accomplished at some loss somewhere: payment cannot be avoided, only delayed.

These laws are applicable to any infinite ecosystem, including the "spaceship" upon which we live. With these laws as guidelines, begin to investigate our relationships to our environment. Have the students find as many examples of Commoner's Laws as they can sight in their own immediate surroundings.

See the bibliography for a listing of *The Closing Circle* by Barry Commoner.

ACTIVITY H:

Using a media form of the student's choosing, have them interpret John Donne's classic line, "No Man is an Island," or the quote from "Desiderata": "You are a child of the universe, you have a right to be here." Do these fit with Commoner's Laws? If so, how?

ACTIVITY I:

Our society is saturated with luxuries and labor saving devices. Perhaps this will not always be true. Present your students with the following situation.

> You work for the Department of Defense and have just learned that a nuclear attack is planned for the following day. Strategists have computed that a 50% chance of retaliation exists. You decide to flee to a wilderness area fifteen hour's drive distance. The attack is to occur in sixteen hours, so you have a little better than one hour to decide and pick up what you will need to survive. You realize that if the attack comes, you will have to live off the land for an extended period. What would you take with you? What types of things would you take? Would you take people with you? Who and why?

After the students form a list of what they would need, have them rank the items on their list in their order of importance. If desired, have the students try living with their selections for a weekend.

ACTIVITY J:
WHERE DO YOU FIT IN THE WORLD?

Have the students respond to the following questions: What does the earth owe me? What do I owe the earth? What do other people owe me? What do I owe other people? What do my parents owe me? What do I owe my parents? Collect these statements or have the students keep these statements for re-examination at the end of the unit.

After the students have considered these questions, ask for a volunteer who will explain his answers to the class. A special chair or place may be set up from which the student can explain his thoughts. Allow the other students to question him while he is in this chair. Set up the following rules to make questioning easier: the person being examined may refuse to answer any question he chooses by saying "I prefer not to answer that, thank you"; the person asking the question must be prepared to answer the question himself if called on to do so.

ACTIVITY K: WHO UNDERSTANDS ME?

A major part of our environment is other people. Yet seldom do we feel that another person understands us well. Ask your students to ponder the following questions: Who understands me best? Why does he or she understand me? Who would you like to understand you? Why? Who do you feel you understand? Why do you understand him or her?

After a suitable period to consider these questions, ask for volunteers to explain what they learned.

The class might also discuss how it is possible to get to know a person well. Do the students even want someone to understand them?

ACTIVITY L:
NON-VERBAL INTRODUCTION

We often meet people and converse with them, but walk away realizing that we have really said nothing at all that is important; we know nothing more about what is going on inside them and they know nothing more about us. This kind of conversation is like a game or play.

For Example:

"Hi!"
"Hi, how are ya?"
"Fine, how you doing?"
"O.K. What's happening?"
"Nothing much. . .Well, I got to go. I'll see ya."
"Yeah, take it easy!"

This activity is an exercise to try to really communicate without using words. Explain to your students you want to try an experiment and need a volunteer. When a student has volunteered, arrange the students in a circle.

Tell them you want them to try to meet each other without using words but rather by approaching each other and touching their open palms and by looking into each other's eyes. You should point out that the degree of meeting will vary and that is to be expected and is perfectly O.K.

After the volunteer has met everyone, see if there are other volunteers. If so, several volunteers might begin meeting students simultaneously.

Afterward, have the students explain what they learned.

ACTIVITY M:
FILMS ABOUT THE ENVIRONMENT

If possible, show one of the following films to your class. See the bibliography for a complete citation.

Cry of the Marsh

An excellent and thought-provoking film dealing with the survival of a marsh area and the encroachment of man.

What Are We Doing to Our World? Parts I and II
Ralph Waldo Emerson, writing more than a century ago, succinctly predicted the present environmental crisis. "The end of the world," he said, "will be that it will eventually die of civilization." Is Emerson's prophecy being fulfilled? "What Are We Doing to Our World?" examines the myriad technological abuses that modern society has inflicted on an aching planet. Interviews with prominent scientists and ecologists such as Barry Commoner lend merit to the proposition that the earth's aging ecosystems can no longer roll with the punches of pollution and misuse that we throw. Within the last century, for example, man has poured an inordinate amount of carbons into the atmosphere which may trigger one of the following calamities: the thick shield of carbon will refract sunrays and warmth, thereby bringing about a new Ice Age; or, conversely, increased carbon dioxide will trap heat in the atmosphere (the greenhouse effect) raising the temperature of the planet considerably and causing the polar ice caps to melt. Scientists are not yet certain which of the two is more likely to occur. The film also includes shots of America's dead sea, Lake Erie, the Santa Barbara oil spill, the desert created by the Aswan Dam, the London and New York smog inversions that tripled death rates in those cities. What are we doing to our world? The film's answer is fairly obvious.

Island of Dreams
Everyone dreams of going off and living on a peaceful deserted island. The hero of this brief, animated film gets his wish and leaves the noisy, sterile and overcrowded world he had been living in. Once alone on his desert island he finds that he has the power to do whatever he chooses to make his home paradise. Predictably, he can't live without the benefits of technology, and gradually his island paradise looks more and more like the world from which he has fled. There is no narration; only very humorous animation. The importance of the message depends on the viewer; the film is nevertheless fun to watch.

America and the Americans
"America and the Americans" is less an environmental film than it is a presentation of one man's insights into the American character and personality. It is a montage of the reflections of John Steinbeck, Nobel Prize winning author, and observer of the American scene for more than forty years. While Steinbeck's observations on politics, philosophies, and personalities dominate the film, he also offers an interpretation of man's relationship to his resources that is not unique but is well presented: for too long, American man considered his resources unlimited and is only now coming to the sad realization that they are not. As an excellent survey of the underpinnings of American culture, this film can provide a good starting point for discussion of environmental destruction American-style.

State of the Earth
A series of juxtaposed, contrasting vignettes — untouched fields to urban construction projects, sunsets and ponds to refineries belching fumes, wildflowers to flowers withered by pollution — convey this film's oft-made point: modern man has forsaken the natural world for one in which traffic jams, electronic music, and pollution abound. Mellow tones of a cello and recorder set the lyrical, wistful mood of this unnarrated film, and combine with the frequent shots of animals, babies, and flowers to create an oversentimentality uncommon to NBC documentaries. Not pointedly environmental, the film presents more of a general comment on modern society in which pollution and destruction of natural beauty are only one component.

Film reviews from The Environmental Film Review, Environment Information Center, Inc., Film Reference Dept., 124 East 39th St., N.Y., N.Y. 10016, 1972.

EXPERIENCE #2: IDENTIFYING OTHER'S ATTITUDES TOWARD THE ENVIRONMENT

OBJECTIVES:

1. The student will examine various philosophies as exemplified in the life and writings of selected individuals and the media.
2. The student will discover community attitudes concerning those actions.
3. The student will compare the attitudes with the actions of the community.
4. The student will examine his own lifestyle and the attitudes toward the environment it unconsciously supports.

ACTIVITY A:

Is there a general American philosophical attitude toward the environment? Currently there is much talk about the condition of our environment. Many opposing opinions and views are being expressed. Does it make sense to say that there is a general attitude common to most people?

1. Have the students search written and electronic media for statements of clues to environmental attitudes. Have the students pay attention to advertisements, billboards, radio, television, newspapers and magazines. The written media search could be done either in class or as a homework assignment. The electronic media (television, radio) can probably be best studied at home.
2. Have the students make a bulletin board of articles and advertisements expressing environmental attitudes and actions.

ACTIVITY B: ART EXPRESSIONS OF OUR CULTURE

Art is the way man expresses himself and his relation to his environment. By examining formal and popular art we may come to a clearer perception of how

art expresses our feelings toward our environment. Discuss this relationship with your students and ask them to collect and interpret evidence of how art expresses our attitudes toward our inter-personal and physical environment. Paintings, sculpture, and architecture may all be used. So may more common or popular art, such as graffiti, popular music, etc.

ACTIVITY C:

Evaluate your family's life in terms of Commoners four laws. Does your family live according to them? Watch waste products for one week. Where do they go? Which can be readily reabsorbed back into the ecological chain? Which cannot? Where does your family's waste go?

How Long Do They Last?

ACTIVITY D:

In groups collect all discarded litter within a one block stretch near your school. Take it to your classroom and evaluate it. How long will the parts take to be reabsorbed into nature? How many of them were part of the packaging of a product? How long were each used? How many people do you think used them? Calculate the weight and volume of the litter collected. How much must be lying around the streets of your city?

ACTIVITY E:

Have the students study the works of and about one or more persons noted for their feelings toward the environment. The persons below might be included, but your choice is not restricted to these.

1. Henry David Thoreau
2. John Muir
3. Ralph Waldo Emerson
4. Dr. Barry Commoner
5. Gifford Pinchot
6. Theodore Roosevelt
7. John Wesley Powell
8. Frederick Olmstead
9. Aldo Leopold
10. Stewart Udall
11. William J. McGee
12. Carl Schurz
13. Hugh Hammond Bennett
14. George Perkins Marsh
15. Walter Hickle
16. Rachel Carson

ACTIVITY F:

Have the students compare the philosophies advanced by the persons studied in Activity A through debate or role-playing.

1. The students should assume the role of a person with whose environmental philosophy they agree.
2. The teacher should then divide the students into pairs or groups opposing views.
3. Have the students prepare a statement of philosophy for the role they are assuming.
4. After a study of the position papers, have the students debate the philosophies before the rest of the class.
5. After the debate, let the class decide which side is supporting the "best" philosophy.

Teacher's Note:

The debate and discussion should center around the philosophies expressed and not the students or their speaking abilities. The format for the debate can be devised to best fit the specific classroom situation.

Some possible pairing might be these:
Muir vs. Pinchot, Rachel Carson vs. Robert White Stevens (Rutgers University), Sheepmen vs. Cattlemen vs. Farmers (Use of land in the west).

The pros and cons of such controversies as the ones listed below might also provide philosophies for debate.

The Alaskan Pipeline
Hetch-Hetchy Dam
Echo Park Dam

By identifying with certain philosophies, the students will begin value judgment.

ACTIVITY G: LIVING IN ANOTHER MAN'S SHOES

For one week, try living like a group of people you are not a part of, for example: Quakers, farmers, Eskimos, factory workers, hippies, pioneers, Amish, or American Indians. After reading about them, try doing one or two things they value as useful or do on a regular basis. At the end of the week, answer these questions:

1. How much did this new activity in your life inconvenience you?
2. Did you enjoy it?
3. Did it bring you in contact with people you probably would not have met?
4. After this experience, will you change your habits in any way? Why?
5. Do you feel it would be valuable for other people to try this?
6. Does your experience of the past week make you want to try any other alteration in your life?

If desired, additional questions from the class can be used.

ACTIVITY H: YOUR TOWN'S EARTH THOUGHTS

Take a walk or maybe a survey of the buildings and layout of your town. By the placing, design, and style of buildings in your town, can you tell anything about how earlier townspeople felt about their environment? Are or were there open spaces, parks, green areas? Do or did the houses have large windows, yards, window seats, or interesting spaces? Compare these findings with old records as to opinions and actions concerning the environment.

ACTIVITY I: COMPARING VIEWS OF LOCAL BUSINESSMEN AND PUBLIC OFFICIALS

1. Invite local businessmen and industrialists to speak to the class about industry's role and obligations to the environment. Before the visit, have the students prepare a list of questions or concerns to present after the speakers presentation.
2. Invite local government officials and agencies to present their views on environmental responsibilities. Such officials might include these:
   - council members
   - county commissioners
   - health board members
   - county engineers

   Agencies to invite might include these:
   - Soil Conservation Service
   - Cooperative Extension Service
   - Corps of Engineers
   - Forest Service
   - Audubon Society
   - League of Women Voters
   - Local sportsman's groups

   Compare the philosophies expressed with actions or projects the groups have undertaken.

Teacher's Note:
Some speakers can present views violently opposed to most student's views. Be sure to remind the class to word questions in a manner which is not antagonistic.

ACTIVITY J: INVESTIGATION OF WRITTEN MATERIAL FROM "ENVIRONMENTAL GROUPS"

Have the students write to various groups and request philosophies or statements of purpose. (See Appendix B for the addresses of a few organizations.)

EXPERIENCE #3: RE-EXAMINATION OF PERSONAL ENVIRONMENTAL VALUES

OBJECTIVES:

1. The student will re-examine his views about the earth.
2. The student will develop his own environmental philosophy.

ACTIVITY A: EXPRESSION OF ATTITUDES TOWARD THE ENVIRONMENT

Have the student express his personal attitude toward his environment through some art form. He may write a poem, play, essay, or story; draw a picture; make a collage of photos; present a musical show; present a multimedia show; or do whatever the students decide.

ACTIVITY B: PERSONAL PHILOSOPHY

Have the students prepare a written personal philosophy statement on the environment.

Teacher's Note:
Many students may wind up writing on an environmental problem. A philosophy is broader and deals with attitude and feelings toward the entire environment.

ACTIVITY C: POETRY

Have the students write a poem expressing their feelings toward the environment. This could take the form of "What I Like Best or Dislike Most."

Teacher's Note:
The haiku and limerick are two forms of poetry which may be easier for students to write.

ACTIVITY D: ACTION PLAN

The student should detail a plan by which he will act upon his philosophy. This is the test of how sincere and well thought out the student's philosophy is. It is more important that he be honest and realistic than that he have plans which he won't carry out. If a student's philosophy is to amass as many things as possible, then his plan could involve getting a job to make money.

Have the students share their action plans with the class.

ACTIVITY E: DEPENDENCE = CONCERN REVISITED

1. Explain what happened to your plant or animal during the unit.
2. How would you feel if your plant or animal died?
3. Is the condition of your plant or animal now dependent on your past care and concern?
4. Will you continue caring for this life form after the unit is finished?
5. From this experience have you learned anything about your relationship to other living things?
6. Does your treatment of living things affect the environment?

What Do I Owe The Earth?

ACTIVITY F: RECONSIDER ACTIVITY J OF EXPERIENCE 1

Where do you fit in the world? Have the students respond again to the following questions: What does the earth owe me? What do I owe the earth? What do other people owe me? What do I owe other people? What do my parents owe me? What do I owe my parents? Have them compare these answers with their original answers. Have their feelings changed? If so, why?

APPENDIX A:
HOW TO BUILD A TERRARIUM

Have students bring soil, rocks, plastic wrap, and small plants of any kind.

a. Clean gravel in hot water (free it from oil, salt detergent).

b. Dry gravel by evaporation or sunlight.

c. Place gravel in bottom of large jar.

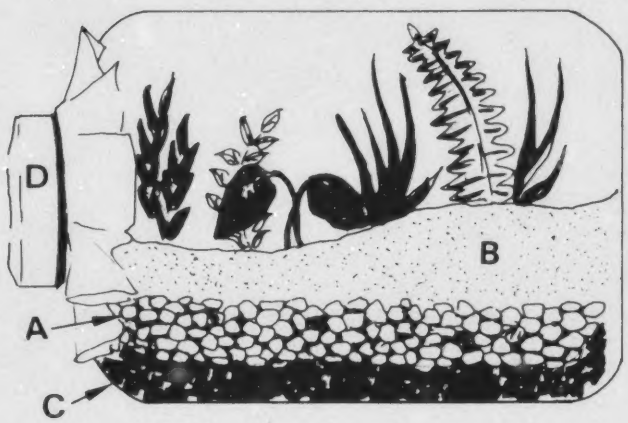
d. Place soil on the top of the gravel.

e. Plant plants. Be sure roots are covered. (Include some bark with licen or moss. It grows anywhere there is shade: in cracks in sidewalks, near old foundations, between bricks on shady side of buildings, etc.)

f. After planting, place charcoal near the side of jar.

g. Drop about 2 teaspoons of tap water over plants and on soil; seal using plastic wrap and rubber band. (If there is concern about someone poking a hole in the seal, this will emphasize man's part in disrupting an ecosystem!)

h. Place terrarium on a windowsill that gets some light.



JAR

PLANTS WATER

A. GRAVEL C. CHARCOAL

B. SOIL D. PLASTIC WRAP

APPENDIX B:
ADDRESSES OF "ENVIRONMENTAL" ORGANIZATIONS

The Nature Conservancy
1522 K. Street, N.W.
Washington, D. C. 20005

The National Wildlife Federation
1412 16th Street, N.W.
Washington, D. C. 20036

National Audubcn Society
1130 5th Avenue
New York, New York 10023

The Sierra Club
1050 Mills Tower
San Francisco, California 94104

The Wilderness Society
729 15th Street, N.W.
Washington, D. C. 20003

National Park Association
1701 18th Street, N.W.
Washington, D. C. 20009

The Isaak Walton League
1326 Waukegan Road
Glenview, Illinois 60025

John Muir Institute for
Environmental Studies
451 Pacific Avenue
San Francisco, California 94133

Planned Parenthood
515 Madison Avenue
New York, New York 10022

Friends of the Earth
30 East 42nd Street
New York, New York 10017

Zero Population Growth
367 State Street
Los Altos, California 94022

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America and the Americans. 51 min. c, $610p $40r, 1968, Producer: Lee Mendelson for NBC News, Distributor: McG-H, Narrator: Henry Fonda.

Cry of the Marsh. 12 min. c., A film Essay by Robert Hartkopf, Bill Snyder Films, Inc., P.O. Box 2784, Fargo, North Dakota 58102, 1971.

Island of Dreams. 10 min., c, $135p $15r, 1972, Producer: Silvio Severi.

State of the Earth. 18 min., c, $240p $10r, 1969, Producer: Dean Brelis for NBC, Distributor: NBC.

What Are We Doing to Our World? Parts I and II. 50 min., c, $700p $36r, 1969, Producer: CBS News, Distributor: McG-H, (Parts I and II can be bought and rented separately for one-half the total sale and rental price), Narrator: Walter Cronkite.

QUALITY OF LIFE

The quality of life is a problematical, illusive, and hard-to-define field of study. Conceptions of what constitutes a quality of life have varied for thousands of years, as thinkers and whole cultures have competed with both words and arms to demonstrate the superiority of their conception of a quality of life.

American culture is in a time of great turmoil and transition. The events of the past decade have shaken the conviction that the quality of American life is superior to that of the rest of the world or is even very good at all. People everywhere are either trying to return to the values of a simpler time or are questioning and criticizing the values that seem to have led us to where we are.

The quality of life is basically a philosophical question, and Americans have never been very philosophically oriented. Our strengths have always been in more pragmatic matters. We have tended to equate a high standard of living with a quality life. In recent years, there have been many attempts to define and, in the good scientific tradition, to qualify a "quality life." However, the Environmental Protection Agency notes that, as yet, no consensus has been reached on a definition of the phrase, Quality of Life. In a pluralistic society that seeks to maximize personal freedom, it is questionable that a consensus is even desirable, let alone possible.

The quality of life may be considered from a variety of perspectives, but these may essentially be reduced to whether one is making decisions for others, as might a government planner, or for oneself. This unit will concentrate on the individual, hopefully giving him opportunities to make decisions about how he wants his life to be.

Teachers and writers have ideas of what a quality existence is. It is very important that the teacher (or writer) give the students the freedom to draw their own conclusions. Inevitably, the exercises offered in this unit will be slanted in some direction, but they must *not* predict conclusions. They must be open ended to provide the student with an experience, and he must be free to make any honest conclusion. If the teacher can meet his students as individual persons and can explain his values as one alternative of many possibilities, letting them stand or fall on their own merits without trying to impose them, then no manipulations will occur, and some real learning can perhaps take place for both the student and the teacher.

This unit shall be more concerned with the process of valuation than the particular values chosen. It shall endeavor to provide an atmosphere for students to make decisions about their values. It is important for the teacher to create an atmosphere where values may become exposed, internalized, and evaluated. See bibliographic reference 14 for some suggestions for creating atmosphere.

This unit endeavors to help students clarify their values, distinguish how their values are influenced by their environment, and take steps to make their values actualized in their behavior.

It is a very serious unit, one that will require a great deal of thinking and sharing. It offers a number of activities for the teacher to select from that can also lead to spin offs.

There are a number of assumptions and observations which are bases of this unit.

ASSUMPTIONS

It is important that people have the opportunity to decide for themselves how they want to live their lives.

Within certain limits, it is possible to make free, conscious choices of one's values.

If given a real opportunity, students will seriously consider their values and the quality of their lives.

Learning occurs in individual persons. To be of value it must relate to that person's interests and needs. In short, you must begin with the student and discover how his interests can be related to your subject.

A teacher can at best provide opportunities for students to use their own resources to learn new things. He facilitates a learning experience.

Students can teach or facilitate learning for each other as well as adults can.

The opinions of everyone, students and teachers, must be respected. People must have a chance to decide for themselves to the greatest extent possible.

Serious exchange of ideas requires an open, non-evaluative atmosphere. Evaluation destroys openness.

Most school situations do not require original thinking, so students may be slow to begin to think for themselves and may need encouragement.

Discussing personal values may be threatening. The person must always have the option to "pass," not to do a particular activity.

CONTRIBUTORS TO THE DEVELOPMENT OF THIS UNIT

Author ..... John Metz
Editor ..... Susan M. Zacher
Revisor ..... Michael C. Cox

INSTRUCTIONAL OBJECTIVES:

To offer students the opportunity to:

1. Clarify their values by expressing them in some creative way.
2. Begin to discover how and to what extent their environment influences their value selection.
3. Evaluate their everyday lives in terms of their personal values.
4. Plan ways to make their values and everyday lives more congruent.
5. Explore an alternative life style and value system in depth.
6. Realize that only they have the right and responsibility to decide how they want their lives to be.
7. Clarify their values by expressing their ideal of a quality life.
8. Determine how they as unique persons relate to their environment.
9. Increase their awareness of the cultural, political, and economic realities that influence them as members of American society.
10. Summarize, evaluate, and consider changes in their present life and their values.

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EXPERIENCE #1
YOUR IDEAL OF A QUALITY LIFE

OBJECTIVE:

To have students clarify their values by expressing their ideal of a quality life.

TO ME A QUALITY LIFE IS . . .

ACTIVITY A: COLLAGE

Have the students make a collage to express their view of a quality life. Perhaps the teacher could write on the board "To me a quality life is . . . . " and the students answer the statement in their collages. After the project, the students could share their works in groups of four and consider in what, if any, ways they are alike or different. Following the sharing, all of the collages could be put on the bulletin board, with the whole class having the opportunity to view their peers' work. The teacher might have a personal model ready beforehand.

The quality of the art work in this and similar exercises is of secondary importance. What is important is the process the student goes through as he expresses himself. Also, there is no right or wrong way to do this. Any honest effort is correct and good.

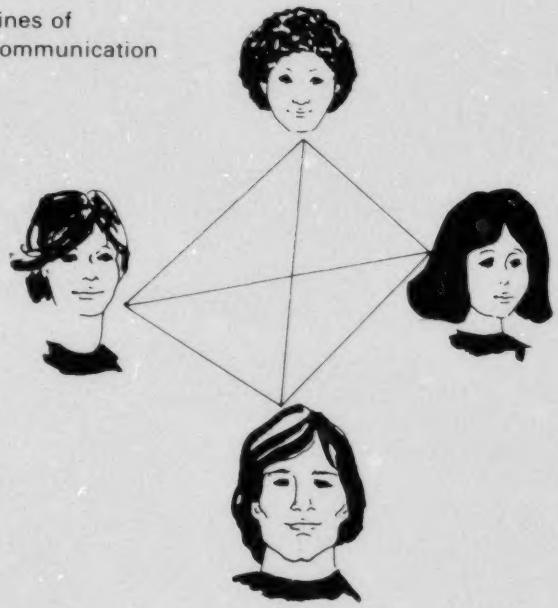
Materials:

Sheets of paper (butcher paper, shelf paper taped together) crayons, glue, tape, magazines, construction paper, scissors, anything else you can think of.

ACTIVITY B: MY NOTEBOOK

The aim of this unit is to have the student examine his life in a new way so that he is able to make more decisions about how he wants it to be. He is to collect as much information as possible about himself and the things he values. Ask the students to bring their notebooks daily and include in them the notes, activities, and their feelings and impressions about the unit. Any student may show his notebook to fellow students or teachers. The notebook provides a simple storage and retrieval or diary approach to the various activities and exercises. It is important to ask that they bring one and use it as a part of the subsequent activities.

Lines of Communication



ACTIVITY C: ARE YOU REALLY LISTENING?

Do you really listen to your students? When was the last time a student approached you with a problem because he knew you would have a sympathetic ear and would hear him out without immediately disagreeing? When was the last time your students really listened to you and tried to understand your ideas before they either accepted or rejected them? Before any value clarification can take place in your class, this atmosphere of listening and respect must be created. Much of this feeling comes from a mutual trust in others as persons. Often this trust is hard to form, but taken slowly it can happen. One of the current methods being used to create trust in elementary school classes is the "magic circle." While in this circle, the students can be sure of the respect, attention, and concern of their fellow students. A method similar to this can also be used on the secondary level.

In conjunction with the discussions of a quality life and what each student values as a quality life, the "magic circle" or "in-touch-with-each-other-group" can be used.

Before actually forming groups, have the students decide what characteristics make it possible for them to talk to a friend. For example: he pays attention when I talk, he looks me in the eye, he offers support and concern, he never makes fun of my problems, and he never carries tales.

The first few times you try this with students, they may want to rate the members of their group as an in-touch person or an out-of-touch person.

While in the listening groups, each student is to show interest and concern and really listen to the person speaking. The students can question each other to help clarify their comments, but it is important to remember that each person's views and values are to be respected.

ACTIVITY D: AM I CHANGING?

Another value-orienting activity that can be used with clarifying the concept of quality of life is an "Am I Changing?" exercise. Before each activity, have the student write his predictions of how he will react to the activity and what his views are toward it. Have the students seal these statments and collect them in a large jar. When the activity is completed, return the statements to the students. Have them examine their predictions and record what the outcomes of the activity were. Were their predictions correct, has this activity changed their outlook, what have they learned from this activity? Next have the students speculate about the effect of this change on them, its permanence, and any new questions that may have arisen. For example: I wonder if I can . . .?, Did I really change . . . ?, What do I need to do to change . . . ?, Should I change . . . ?, etc.

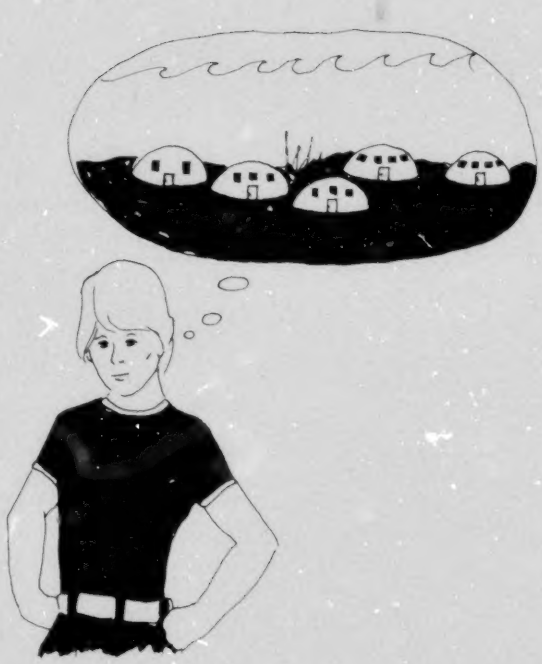
ACTIVITY E: ALL ABOUT YOU OR SOMETHING ABOUT YOU

This exercise gives the students a chance to find out about another person within the class. It's possible for students to go to school with classmates all of their lives and not really know their fellow students. In this exercise, the teacher changes places with a volunteer and asks questions which do not have to be answered but which must be dealt with honestly. Perhaps an activity such as this can be used once a week with many alterations: several students asking questions, teacher being asked questions, or other combinations.

Some sample questions:

1. How are you different, if at all, from how you were in the 9th grade?
2. Is there anything special about your family? You?
3. Who has taught you the most in life? What has that person taught you? (Not necessarily an education major.)
4. What do you remember most about school? church? being 8 years old?
5. What, if anything, was the most dramatic thing you ever witnessed?

Anything else you would like to say to this group on any subject which you feel is important?



ACTIVITY F:

Have the students project their lifestyle at ages 25, 50, and 70, rating any differences and or similarities in how they think they will be living. Some areas which they might consider may be the geographic area they live in; family roles; problem areas; income; friend relationships; and their roles as citizens.

ACTIVITY G:

Have the students form groups of six to eight and plan a presentation of their consensus views of a quality life. The presentation may be difficult to reach. They could present a skit, for example: an interview or debate on a TV talk show, a lecture by a renowned philosopher, a rap session by a group of concerned students, or whatever you can devise. After the presentation, discuss what they learned while in the group seeking a consensus. How did they manage to get a consensus? Does anyone feel the consensus position is so different from his opinion that it doesn't represent his feelings?

ACTIVITY H: MY RECIPE FOR A QUALITY LIFE

Ask the students to give their recipe for what makes a good life. After listing or drawing the ingredients, ask them to answer these questions:

1. Suppose you had to give up one of the items. Which one would it be? What might the effects of that loss be?
2. If you had to have one item above all others, what might the effects of that loss be?
3. Could your best friend, girlfriend, husband, wife, or parents guess your ingredients, or at least two of them?

RECIPE FOR A QUALITY LIFE

ACTIVITY I:

Present this experience to students and discuss reactions.

For several months you have been feeling poorly. After visiting a series of doctors, you have your worst fears confirmed: you have leukemia and will live for only one year. What will you do with your year? What will you work on? Discuss the students' plans for their year and their reaction to the activity.

This brings home the seriousness of the decisions everyone must make. Some students will have avoidance reactions, will laugh or whatever to avoid considering the question. Don't force them to participate, but maintain quiet so that those who will may learn what they can from the exercise.

EXPERIENCE #2
WHERE DO OUR VALUES COME FROM?

OBJECTIVE:

To offer students the opportunity to begin to discover how and to what extent their environment influences their value selection.

Teacher's Note:

As human beings, we are individuals living in a social environment. In order for a society to function, there must be many shared customs, beliefs, laws, and habits. This interlocking network of shared belief is called a culture. At the least, the culture within which the individual lives determines the options available to him, and in this way it determines his choices.

Within this repertoire of options, the individual is further influenced by the behavior and opinions of the other members of his culture that are significant to him.

Hence, in order for the person to be able to make decisions that are his own, he must be aware of the choice restrictions that his culture places upon him and of the influence that significant others exert upon his decisions.

The following section is designed to increase the student's awareness of how his values have been and are being influenced by his cultural background and those people significant to him. A later section will deal with the choice options available to him within his culture.

ACTIVITY A:

Have your students give evidence about what advertisers emphasize as a quality life. Have them go to magazines and look at the ads; write down radio and TV commercials. What are advertisers trying to make the public want? What kind of car; what kind of clothes; what kind of smell; what kind of body? Why do advertisers put what they do into ads? Do they always present young couples or wealthy, healthy, happy people? If the consumer buys the product, will the rest of the advertisement come true also?

What is the function of advertising in our economy? For a reference see the bibliography.

ACTIVITY B:

Have the student describe how he would be as an adult if his parents could control his future. Draw a picture, write a story, or describe verbally. What work would he do? Where would he live? What kind of house? What kind of neighborhood? What kind of car? What kind of spouse? What religion? Have the students answer these same questions if they could control their future. Are there any major differences

between the two lists? Is there any way they could reconcile parental wishes or goals with student wishes or goals?

If there are differences, then perhaps some communication skills can be developed between generations. One exercise that could be used might be to develop a questionnaire which the students answer first and then parents. A comparison of the two lists could lessen areas of misunderstanding. The more they talk, the more they learn.

Sample questions:

1. Can I tell my parents my personal problems?
2. Do Mom and Dad really hear my feelings and viewpoints?
3. What is my favorite class at school, if any?
4. What do I want to become?
5. Am I considered in making family decisions?

For an excellent reference to bridging the generation gap see the bibliography entry Public Affairs Pamphlet No. 438, *Parent Teenager Communication*, by Millard J. Bienvenu, Sr.

ACTIVITY C:

In some way that appeals to the student, have him describe a person that would be liked by everyone in the class. Write a story, poem, or play; draw a picture; think of a well-known historical or fictional character who is similar; etc. In small groups, share these ideas and list the values of such a person. Share your ideas with the class.

ACTIVITY D:

Have students go to a place where teenagers congregate; for example, a shopping center, drug store, pool hall, etc. Have them observe how they relate to each other and answer these questions: What do they discuss, how similarly or dissimilarly do they dress, how much do they laugh, and about what do they laugh? Try to formulate statements about their values. How readily do they accept people with different values? Which of their values do you share?

Then have the students go to a place where adults congregate and observe the same things. Have them answer these questions about the adults: How tolerant are they of diversity? Which of their values do the students share? In what ways are the lists alike? Are they different?

ACTIVITY E:

Frequently everyone acts a certain way in a situation and later regrets it because consciously or not, he acted as he felt his peers expected him to act rather than as he really wanted to act. Have those students who are willing to, write up a situation in which they acted that way. Present these or some of the sample situations listed below to the students and ask them to decide what action they would take, given their beliefs, feelings, and values.

Each student individually is to write out briefly what action he would take in the situation. Then the students could discuss their proposals in small groups and try to decide which solution is most desirable. They may not necessarily agree, but they should try. They also should discuss how they can be more independent of the influence of peers.

Sample Situations

1. You see a kid three or four years younger than you shoplifting at the local discount store. You're concerned that he'll get into serious trouble. What would you do?
2. You go to a party with an older friend. People at the party are using hard drugs and your friend joins right in and offers you some. What would you do?
3. You have a friend who has begun hanging around with people you know are burglarizing houses. He is a close friend. What would you do?
4. You're at a family reunion and one of your uncles continues to make jokes about blacks, hippies, and hillbillies. Almost everyone seems to be enjoying them but you. You notice the younger children taking it all in. What would you do?
5. You're taking a very poor course and not doing so well in it. The night before the final exam, someone offers to sell you a copy of what he claims is the final for five dollars. What would you do?
6. Open burning is illegal in your town but your next door neighbor burns garbage late at night. Will you turn him in or forget it becuase he might make things hard on your family?

ACTIVITY F: VIP'S OF MY LIFE

Teacher's Note:

It is important to ask the students to give more than a yes/no response. Explanations are in order for these open ended activities, and they should be taken seriously.

Ask students to draw a table with the VIP's of their lives seated around or next to it in order of impor-

tance to them. (Note: Any type of table is suitable.) The students may share their tables if they wish. Initials may be used if the students feel threatened. After the table is drawn, ask students to answer these questions:

1. Are there any people who wouldn't have been there a year ago?
2. Are any persons fighting for most favorite position?
3. Is someone missing who you wish were present? Is there any way to get that person back where you would like him to be?
4. What change, if any, will there be five years from now?
5. Are you on any other tables of VIP's?

ACTIVITY G:

To give students a chance to consciously choose their values, this exercise is aimed to help clarify the individual's relation to the many groups to which he belongs.

Extend the concept of a map; it might be possible to "map" these other communities. A map, as stated previously, symbolizes geographic relationships. Try to construct a "map" to symbolize religious or ethnic relationships. For example a Christian could "map" his relationship to orthodoxy by drawing a cross and placing himself wherever he feels right and defining what he intends in a key or legend. Perhaps a teenager's relationship to his peers could be symbolized by clothes. This exercise is intented to be as open as the student's imagination can be.

Begin by explaining that everyone is a member of a variety of different groups. Discuss the concept of a map, that they can analogously "map" other than geographic relationships. Have the students then list four groups of which they are members and which have influenced them significantly. Next, have them decide on what basis they can symbolize or map their relationship to the group. Encourage them to be as creative as possible.

ACTIVITY H:

Have the class list several groups to which a number of them belong; e.g., religious, geographical, ideological, racial, etc. Have the students get together in these groups or communities and discuss the values their group shares. For example, Catholics might get together, or blacks, or smokers, or whatever. Which of these communal values do the students share? Which do they reject?

EXPERIENCE #3
UNDERSTANDING A DIFFERENT LIFE STYLE

OBJECTIVE:

To give the students a chance to select a lifestyle that is different from their own and to explore it in some depth.

Teacher's Note:
Perhaps a way to begin this experience would be to show a film depicting a different style.

ACTIVITY A:

The students could interview an alien, an American foreign exchange student, or a person of another racial or religious background or ethnic group, recording the interviewee responses. Some sample questions they could be asked:

1. What do people in your country do for recreation?
2. What is the major religion of your country?
3. In your opinion, what is your country's greatest problem?
4. Are there any ascribed sexual roles? social roles?
5. What was your biggest adjustment to living in this country?
6. What do you miss the most? the least?
7. Is it better here or there? In what way?
8. What impresses you most about the United States? the least about the United States?
9. How does your society handle death?
10. What is most important in life?

ACTIVITY B:

Give the students a chance to explore in some depth an anthropological study of a different culture. Perhaps lectures on a particular study might be in order, or a student could read and summarize for the class a particular study. Then provide the students several options of studies from which to choose, and have them read one. Afterwards, let them discuss what they read in groups. Perhaps each discussion group could have several members who have read one study and several members that have read a different one. Here are some possible questions to have the students consider in their groups: What aspects of the culture surprised you? How is it similar to the U.S.? List as many ways as you can that it is different from the U.S. Which aspects do you like better than those of the U.S.? Which aspects didn't you like better? Could you live there for two years? How are the various cultures that your group members studied similar to each other? How are they different from each other or from the United States?

See Appendix A for an annotated bibliography of some suggested books and anthropological studies.

ACTIVITY C:

American culture is an incredibly complex but interesting field to study. As indicated before, there is no one monolithic American culture. Rather there are myriad "subcultures," each with differing life styles and values. During the last week of class, the students should prepare to explain and defend the values of a certain life style to their classmates. The emphasis is on understanding rather than evaluating. Encourage the students to do this presentation in any way that seems comfortable, interesting, and fun.

It is hoped that much of their research will be first-hand experience of the people's daily existence: visiting and talking with them; walking their streets or fields; visiting their place of relaxation and work; listening to their music; reading and listening to their literature and music.

Here is a list of some possible subcultures: rural white; Amish; rural black; rural mountain folk; urban mountain folk; inner city black; middle class black; any of a variety of European ethnic; urban Puerto Rican; urban American Indian; suburban black; Jewish; Catholic; poor urban white; middle class urban white; hippie commune; religious commune; the elderly or any other that may come to mind.

Remind the students that they are to be scientists. They must treat the people they are studying with respect. They are going to learn from them, and this requires a great deal of sensitivity and humility. In order to understand, they must be as open as they can and reserve their judgment. Evaluation kills openness both in themselves and in the people they hope to learn from.

First try to marshal the resources of the class. Brainstorm for ideas of ways of getting into the experience of the sub-subculture; e.g., if rural, perhaps go to a farm and do the chores and work for a weekend; if innercity, travel around by public transport, price food before and after welfare checks are distributed, compare food price and quality in the inner city and in your local supermarket, etc. See who may have friends or relatives who belong to some other subcultural group; having a contact is an excellent way to get into a different cultural setting. Of course, use any written resources available.

See Appendix B for a list of good resource books.

EXPERIENCE #4
ME AND MY ENVIRONMENT

OBJECTIVE:

To have students determine how they as unique persons relate to their environment.

Teacher's Note:

Everyone goes through life preoccupied with plans, problems, and projects and seldom notices that which does not directly affect their immediate interests. Yet, to varying degrees, the environment which is not directly conscious is constantly affecting not only feelings and attitudes, but also immediate interests. Though it is oversimple to say that "X" and only "X" factor is affecting one in "Y" way, yet, by considering factors individually, one can begin to understand how the environment does affect us and how we can deal with it most satisfactorily. This section will give your students a chance to concentrate directly on their world as it affects their feelings.

Therefore, as the students do the following exercises, try to impress upon them that they must look at things with new eyes.

They are to become investigators of their environment, and this requires that they open themselves to the experience, that they look at things without preconceptions or prejudice. They are to realize that their *reaction to the experience is the chief area of study. We want them to discover new things about themselves and their environment. They will be going places they have visited a hundred times, but they are asked to experience them as if they had never been there before. Perhaps a prop of some sort, a clipboard for example, would help remind them of this. The most important thing is an investigator's attitude.*

ACTIVITY A:
DO YOU REALLY SEE?

The teacher begins by asking questions about items in the classroom that students have been exposed to but have never really paid close attention to. It is possible to see things and not really see them. Perhaps a quiz without looking around the room should be given.

1. How many lights are there?
2. How many shades?

3. Is there a file cabinet? If so where is it located?
4. What is the title of the bulletin board?
5. How many blackboards are there?
6. What question appears on the left side wall?
7. How many rows of desks are there?
8. What is the last person's name in your row?

ACTIVITY B: BLIND WALK

Have the students select a partner they do not know well. Use blindfolds, and ask one student to be the guide; the other to be the sightless person. For five minutes the guide is nonverbably to direct the blindfolded person to a variety of experiences: touching and feeling walls, fibers, flowers, hair, rugs, desks, or any item. The guide may raise the person's hands to touch the things but without comment. It is important that both parties remain silent during the activity. At the end of the allotted time, the roles are reversed. Following the exercise, the student can be asked some questions about the learning, feeling, and not seeing experience. It is hoped that sense education may become more important to the student.

ACTIVITY C: TASTE EXERCISE

Set up a room with at least twenty objects you find beautiful, ugly or indifferent. They may be photos (of men, women, landscapes), advertisements, natural or manmade objects, cloth, etc.

Have the students explore the room listing what they find beautiful, ugly, or indifferent and the reasons for their decision. Don't forget to have them consider the room itself and the school building.

Possible criteria or categories that will influence their aesthetic judgment are these: the texture of the object; the color or color combinations; the shape; the space the object or room defines; the sound; the rhythm; or whatever aspect appeals to the individual. It is important they remember that tastes are relative and vary widely. Hence, there are no right or wrong answers, but only those objects which someone finds beautiful or ugly.

The teacher should also specify to himself what aspects of the objects he likes or dislikes.

After individually examining the objects, have the students form small groups and tour the objects together, discussing what they liked or disliked about the objects. Afterward have them return to the classroom and discuss what they learned about themselves and their perceptions of beauty. For the next day, have students bring at least three things they find beautiful to class and explain why they like them.

Materials:
Twenty objects

ACTIVITY D:

Set up some test rooms for students to explore; for example, one with a lot of noise; one that is cluttered with many contradictory objects; one that is filled with hard cold objects, arranged very precisely and geometrically and painted in a uniform, bland color; and any other type of room you desire. Have the students explore the room for three minutes and then write down their impressions and comments for three minutes. Return to the classroom and discuss how they felt.

ACTIVITY E:

Ask the students to consider the room they sleep in and to write or draw a description of it. How is it decorated? What are its present colors? How would you decorate it if you could do anything you wanted? What colors would you make it? Are the things in the room useful? Do they make you feel good? Could you change them so that you would like them better? How? Draw a plan of how you would like your room to be. Whose permission would you have to get to make it this way? How much would it cost? Could you make some of the things you might want? Find out all the information, go talk to whomever you have to, and then DO it.

Think also about your house or apartment. How do you feel in the various rooms: comfortable, cozy, quiet, careful, what? Where do you like to be alone? Where don't you like to be alone? Do you know why?

ACTIVITY F:

Have the students walk down the street on which they live. Consider the five buildings on either side of their house or apartment. How are they similar in floor plan, shape, size, decoration, ornamentation, etc? How are they different? Perhaps trying to sketch the similarities and dissimilarities will make them clearer.

Does the similarity or dissimilarity make the students feel any particular way? Which house do they most like? Which least? Can they say why? How are their feelings toward the buildings affected by the people who live in them? Can they only look at the building to evaluate it without thinking of the people who live inside? Perhaps they could visit a similar area where they don't know anyone and compare their evaluations.

ACTIVITY G:

Have the students walk around their neighborhood and look at it. List the places, buildings, and things that they find beautiful and ugly and list their reasons for feeling that way. If possible, take photographs and put them in their journals with their notes. In class, describe what they found and why they liked or disliked it.

ACTIVITY H:

Have the students look at the school aesthetically. How does the building make them feel; how about the various rooms? List five things they find beautiful and five things that seem ugly.

How do the people in the building affect their feelings toward it; e.g., the room of a teacher they like or dislike. How about the subjects being taught; do they affect their feeling toward the building or parts of the building?

In the building there are many different spaces: the spaces defined by the gymnasium, the cafeteria, the lounge, the classrooms, or the closets. Have the students go to these various spaces and walk through and around them. Do they feel different in the various rooms? Have them specify how the height and width of the spaces affect them. Do they feel crowded, comfortable, insignificant, bored, etc.?

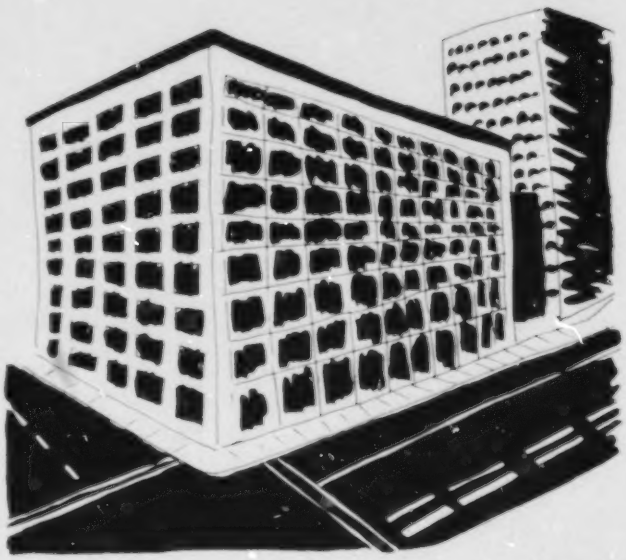
Have students return to their grade school and see how the spaces differ.

As a project, have the students get into small groups and decide one way they would make the school building more pleasing. Have them plan exactly what they would do, how much it would cost, whose permission they would need, who could do the work, etc. Then have them do it if they can.

ACTIVITY I:

Have your students visit a discount department store. For ten minutes observe the check out counters and count people who say anything more than is necessary to complete their business. Interview ten people at random about how they feel in such a store. It is best to have specific questions: Do you feel any particular way in this store? Why do you shop here? Please name three things that you like in or about this store. Please name three things you dislike. Have students note the reactions to them.

How do the students feel in such a store?



Now visit a country store or small neighborhood grocery or delicatessen. Try to repeat the above procedures and note any differences. Do the students have a preference between these two types of stores? Are there certain times or moods in which they have a preference? List advantages of each.

ACTIVITY J:

While in the discount store, have the students look around and list everything that is made of one material but looks like another; e.g, formica that looks like wood. For several days, wherever they go, have them be aware of this and add to their list whenever they discover something that is simulated. Do they have any specific feelings about these simulated things? For example, would they prefer to have an old and slightly worn piece of wooden furniture or a new clean piece made of plastic but looking like wood: Can they explain their views?

Next have the students visit a good quality furniture store and examine the furniture. If they have both plastic and wood furniture, compare the two. Look at how they are made; feel the textures; see if they can detect any smells. To which senses does the wooden furniture appeal? To which senses does the plastic appeal? List advantages and disadvantages of each.

ACTIVITY K:

Have the students think of all the fast food chain stores they have been to. How many different floor plans have they seen? How does the decor change? Do they have music? Can they think of any unusual events that occurred at these places? How many individual fast food stores can they remember?

ACTIVITY L:

Have the students think of five close friends they have had. Have them record why they are or were close friends. How did they get close? What activities did they do together? What topics did they discuss?

What hassles did they experience and resolve? If they are no longer close, what happened that they drifted apart?

Can they discern any trends or patterns in the five relationships? In small groups, have students share what they learned about themselves and their friend relationships.

ACTIVITY M:

Have individual students write a fable, a poem, or an essay about "true friendship," or have groups of students plan and act out a skit about "true friendship." Have the students discuss their ideas of friendship in groups.

ACTIVITY N:

Have the students think about love relationships. Where do ideas about love come from? Have them list the qualities they would like to find in a person with whom they might have an extended relationship; be as honest as possible.

Popular songs are frequently about love and express many varying concepts of love. Have students find several love songs with whose ideas they agree and several love songs with whose ideas they disagree. In small groups discuss the songs they selected and why. Present the group's consensus views of love in some creative way.

EXPERIENCE #5
THE NATIONAL ENVIRONMENT

OBJECTIVE:

To increase the student's awareness of the cultural, political, and economic realities that influence him as a member of American society.

Teacher's Note:
As stated earlier, the United States is composed of many groups and subcultures. The nation is defined by the political, economic, and cultural compacts that provide these groups and the people that constitute them with a framework within which to operate.

These are for the most part static, given realities that the student must try to understand to maximize his ability to deal with them. Also, each citizen is to have a voice via the ballot as to how he thinks his nation should be. Hence, he should understand the influence of the political, economic, and cultural systems upon him in order to be able to make intelligent decisions about altering these compacts.

ACTIVITY A: FILL IN OR COMPLETION

Have students complete the following sentences:

"To me, being an American means . . ."

"The things that have made this country great are . . ."

"In my opinion, our biggest problem as a nation is . . ."

"I am proud that we have . . ."

"I wish Americans were . . ."

ACTIVITY B:

The word "patriotism" elicits a variety of responses from Americans. Have the students list several people who would react differently to the word "patriotism": for example, a banker; a middle-aged factory worker; a radical student; an inner city resident or an unemployed Vietnam veteran. Have the students briefly describe what the word might mean to each of these. Which of them is right? Which pairs of them could rationally discuss "patriotism" together?

ACTIVITY C:
POLITICAL PRESSURE

Explain to the students the following situation: they live in a large midwestern city with many of the problems typical of contemporary American cities. There is a great distrust between the numerous ethnic and racial groups living in the city; the city is 42% black, many blacks have recently arrived from the rural South. The tax base is eroding as more and more of the affluent continue to flee to the suburbs. The city is heavily industrial, but many of the factories are antiquated, and more and more of them are moving to the South, etc.

There is a young white lawyer who has been a city councilman for two terms and who has just decided to run for mayor. He represents a ward that is near the university and so has a basically liberal constituency. He has often supported an alliance of black politicians, but has also opposed them.

His father is the president of a large local corporation, but the father and son are estranged because the son has supported some proposals the father opposed.

The lawyer and eight others have come together to discuss and plan his candidacy.

Divide your students into groups of nine. Let one of the nine volunteer to be "it," the young lawyer. The other eight are to assume one of the roles detailed below. Assign each of the eight a number.

When you call out a number, the person whose number is called is to exert pressure in "it" using the role he has assumed. "It" is to resist the pressures in any way he can, provided it is consistent with his role as young lawyer candidate.

After you have called all the various numbers singly, call several at once. The idea is to keep increasing the pressure on the person who is "it" until he can no longer defend himself. When the pressure gets to be too much, stop the exercise. A word of caution is in order. Watch the person who is "it" carefully to be sure that the exercise is not traumatic. You should know your students fairly well by now and have a good idea who can handle it and who cannot.

Have the students form small groups of from three to five and role play that they are the young councilman and his close advisors planning the campaign for mayor based on what they learned in the pressure game. Let one be the councilman, one be his wife, one be his idealistic aide, and one be a pragmatic aide.

Possible roles for the pressure game:

Mayoral candidate: a young, white councilman from a ward surrounding the university, representing a liberal constituency; his father is an important man in the city; the young candidate has often supported an alliance of black politicians but at times has opposed them; he is seen as a supporter of black issues; and he generally favors liberal causes, though is largely his own man.

Father of candidate: long established in the city; always consulted by past political office seekers; still sees city in terms of the 1950's before it was beset by current problems; he is very happy that his son is a candidate but wants to control him more than he has been able to do in the past; father and son are estranged over past political differences; father will use money to pressure son.

Head of black political alliance: interested chiefly in his own political advancement and in improving opportunities for his constituents; is demanding that the candidate support all the demands of the black alliance; claims he will run as a third candidate if the councilman does not support his demands, destroying both their chances of election by doing this.

Chief aide of candidate: idealistic; issues are most important to him; willing to compromise to gain power in order to be able to do something for people, but is very wary of which compromises to make; chief source of councilman's platform.

Chairman of Democratic Party: has long been estranged from the candidate for failure to vote the party line; realizes that the councilman is the best candidate for his party but wants concessions from him in return for support; has money behind him.

Public relations man: friend of a friend of the candidate; believes that the candidate must be more bland, less controversial to be elected and to get support of big business who has the money; must be packaged for TV.

Lawyer representing the city's growth association: wants to improve conditions in the city, but through the traditional channels; will not support any "radical" ideas as the councilman has sometimes done.

Wife of candidate: supports his desire to be mayor, but most concerned about the family and the exposure it will get; is slightly afraid that this will keep the councilman away from the family too much.

These roles are merely suggested; any additional roles that can be devised may be used. Try to make them as realistic as possible.

The pressure game may be used in other situations. In fact, it would be best to use the game several times with other situations to familiarize the students with it before you begin this rather complicated situation.

A possible situation: "It" is the mother of a family of five. She has been shopping, ironing, and washing all day. She is to go out to dinner with her husband that night. Her oldest daughter needs a dress for a party that evening, the son wants to have several of his friends over for a party, and the paper boy has picked this moment to come collecting. The minister's wife just called to say that there will be a bake sale tomorrow and could she supply something. Another daughter, a high school senior, has just been invited to a fraternity weekend. (The mother does not like the boy, the father does.)

Think up other situations to use for practice. Frequently many students like to be "it," so provide enough opportunities for this.

(The Pressure Game was developed by the Learning About Learning Educational Foundation, San Antonio, Texas and permission granted for use in this curriculum)

ACTIVITY D: OIL CORPORATION GAME

It is 1971, and the U.S. Senate has just received a proposal to let a group of oil companies build a pipe line to transport oil from the North Slope of Alaska.

Divide the class into groups of eight. They are the controlling members of a large oil company's board of directors. The company had lobbied long and hard to secure the passage of the bill. The men are meeting to plan their next moves.

Assign students the following roles or let each choose one of them. Have them think briefly about the following characters and write down the characteristics this person would have. If they can think up alternative characters, that is excellent.

Once they have clarified their characters, begin this meeting.

Chairman of the Board: forty-seven year old ex-athlete; has attained his position by ruthlessly pursuing his advancement; knows that several others want his position and the pipe line could be their key to getting it.

Vice President in charge of marketing: a calm, mild-mannered man, but with a tremendous desire to win; drives Formula I race cars.

President of the Company: His grandfather began the company. He studied philosophy before joining the corporation and has been impressed by the validity of the environmentalist's arguments against the pipe line.

Vice president in charge of resource development: knows that the company's oil reserves are plentiful relative to other competitors; also realizes that his advancement is dependent on improving the relative position of the company; has an excellent track record; figures he is in good position to move into presidency or chairmanship.

Treasurer: former banker; close friend of the brother of the President of the United States.

Stockholder #1: lawyer representing an anonymous family that has recently purchased a large block of stock; the family is rumored to be Mafioso; wants to play it safe.

Stockholder #2: former head of the Federal Trade Commission; currently a close friend of the Secretary of the Treasury.

Young lawyer: head of the company's legal department; very concerned about the company's public image and about the growing popular distrust of the large corporations.

After the students have decided on a course of action for their corporation, have them discuss what they learned. What type of values must these men have? What are the three main personal objectives of these men? It is argued that the free enterprise system is the best system for the majority of the people. Is this the free enterprise system? Is this corporation going to give the good of the majority very high priority?

Questions to research:

How much of the economy is controlled by large corporations like the oil corporations?

What percentage of high government officials (heads of the federal regulating agencies, cabinet members, government advisors, etc.) have been important in the large corporations?

Where else might the people with the necessary skills and experience be found?

Is it important that often the heads of the federal regulatory agencies come from the industries they are to regulate?

Is there anyone controlling value to the economy?

Is the students' oil corporation directed by any one value?

How does a large corporation affect the quality of our lives?

ACTIVITY E: THE AUTOMOBILE

The purpose of this exercise is to make the student aware of the automobile as a key element in American culture. How does it affect the quality of our lives?

You have just learned that all oil wells have dried up. There is no gasoline, and for the first time in your life, you are living in a world with *no* cars. What differences would you notice? How would our world be? What changes would take place in how you go to school? to church? to the nearest mall? go on vacations? in all the land used for highways? in how we get to work? in our factories which make products for cars? What, if anything, would you like about this? would you dislike? Would your dating life be affected?

After the fantasy exercise, have the students reveal in writing or in discussion the world they envisioned.

How would they like to live there? Could this be more than fantasy? Is it possible for those who saw the advent of the automobile to believe or envision a world without the horse and buggy?

ACTIVITY F: TELEVISION

Another key element in our culture is television. It can be used as a means of getting at values.

Currently *Kung Fu* is a very popular TV program. The hero lives his life according to a strong set of values that seem to be quite different from the values of those with whom he relates. What are some of those values?

Can you think of a TV show that is based on a contrasting set of values?

Another popular program that deals with contrasting values is *All in the Family*. There is frequently a conflict between several of the characters. What values do the characters represent? Do the characters seem real?

The teacher may think of other, more appropriate programs that can be used as a way of discussing values. It is intended that he use them.

There is lots of talk about the effect of television on people. Do you feel TV has affected you? In what ways?

What about the quality of television programs? List criteria for a quality program. Then, as an experiment, watch ten TV shows at random and evaluate them according to your criteria.

Of the ten shows that you watched, what percentage of the endings could you predict before the show was three quarters over? How many of the characters are like people you have met? How many programs have a "message" or moral, like "police are good people," or "doctor X will know what to do." Do the students think that TV programs should be predictable, have characters that are like people they know, or have a moral?

ACTIVITY G: CHANGE AS A CULTURAL ELEMENT

A constant element in American culture is change. Already most students have seen big changes in their lives.

Older people frequently harken back to the "good old days." Whether or not they were really good is difficult to decide, but they certainly were different.

In this exercise, ask the students to interview their grandparents and their parents to try to determine in what ways things have changed since they were teenagers. If preferable or necessary, the students may interview other adults of their grandparents' and parents' generations.

The objective of this exercise is for the students to get to know a person who has a different experience base than he does and to learn from this person about life in the United States at an earlier time. It is hoped that the student will thereby be better able to understand the sources of his culture, how what is currently

going on in America has roots in the past and has been developing for a long time.

The interviewing technique will determine the quality of the information gathered. It is very difficult for teenagers to communicate with their parents because oftentimes evaluations are being made, and as we keep repeating, evaluation thwarts open communication. Perhaps for that reason it would be best to interview adults who are not parents.

Generally, it seems to be easier for teenagers to communicate with their grandparents. Unfortunately, as a culture, we do not honor old age, and because there is so much change, it is difficult for old people to keep current. Yet, that does not lessen the knowledge they have gathered through their lives or the accomplishments they have achieved. It is important for students to have the opportunity to discover and take advantage of this experience.

Hence, the student interviewer should be cautioned to approach his interviewee with respect and humility. He has come to learn, and to the extent he can communicate that intention, he will learn.

Regarding points to consider in the interview, let the students determine what they would like to know and start there. Below is a list of possible considerations. The main emphasis should be on the values and quality of life at the earlier time. The student should try to get as clear a picture of daily life as he can, because the quality of one's life resides in one's daily activities.

It is best to have specific questions but to leave them open ended; that is, requiring more than a *yes* or *no* answer. As the interview develops, new questions may occur to the interviewer, and he should pursue them.

The guiding purpose of the interview is to determine how the values and life style of that time evolved into what is presently occurring. This should be a general question that the student is trying to answer for himself; it may also be a specific question to be asked of the interviewee.

Questions to be considered:
How did the people get around then? What forms of transportation were available to which classes of people?

How many brothers and sisters did the interviewee have? What chores did each have? What chores did your mother do; which chores did your father do; which did either do?

What job did your father have; how many hours a day did he work; what job conditions did he have; what tools did he use?

What kind of house did you grow up in; how many rooms did it have; how were they decorated; what did they have in them; what kinds of furniture was there; how was it heated; where did you take baths?

What kind of food did you eat; when and where did your mother shop; how much time did she spend cooking? Did you grow any of your own food?

What do you remember about your grandparents; what kind of people were they; did they tell you about their childhood?

What did you think were the "necessities" of life — that which you had to have to survive? Have you changed the list of necessities since then?

What did you and your family do for entertainment; where did you go; with whom did you go?

Describe your neighborhood: how far were you from school, store, church? Describe your school building, the store, and the church.

Were you religious? How has your attitude toward religion changed?

When did you start dating? What were the "rules" of dating? If you married, how long did you date your spouse; how did you meet; where were you married; where did you go on your honeymoon?

What was your greatest achievement?

What was your greatest disappointment? How did you deal with it?

What do you think are the most important changes that have occurred since you were young?

What changes that have occurred surprised you most?

What aspects of your life were better for young people when you were my age than they are now? What aspects are better now?

Which values of society have changed in this time? Which values of yours have changed? How were your values different from your parents'? How were your children's different from yours? How do you think mine are different from yours?

Was it better to be living then or now?

What have we lost that was good when you were a child? What have we gained?

Do you think America has too many material things?

Based on your experience, where do you think this country is going?

Do you think things are changing more quickly now than they were then?

When the students have completed their interviews, they should try to express what they learned in some form: write a story about life in the time when their grandparents or parents were young; write an essay comparing the lives of their parents, grandparents, and themselves; write a story about suddenly finding themselves living at the time their grandparents were teenagers; prepare a tape recording about the interview; or do what ever they want to communicate the important information of the interview.

Now have your students gather in small groups and share what they learned. They should also consider change as a cultural element. Change is usually considered good. It is equated with improvement. But is something new necessarily better? What is the role of change in advertising? In our economy? Does this constant change make life easier or more difficult?

EXPERIENCE #6
EVALUATION AND ACTION

OBJECTIVE:

To offer the student an opportunity to summarize, evaluate, and consider changes in their present life and their values.

Teacher's Note:

Thus far the students have discussed the ideal of a quality life, tried to determine the source of these ideals, and tried to increase their awareness of how their environment influences them. Let the students now re-evaluate their ideals and compare them with the reality of their lives so that they can plan ways to make their lives and ideals more congruent.

ACTIVITY A: TODAY — TOMORROW

Ask the students to study their lives. Where have they been? What do they remember most about their lives? About their accomplishments and or successful experiences? their failures? their sad times? If a newspaper reporter were to write a biographical sketch on your life up to the time of the writing, what would be said? Would anything be written that you wished were forgotten? Is there something which you would like to include but couldn't because it hasn't happened yet?

Next have the reporter revisit the interviewee on a day when most of one's goals or ambitions have been accomplished or achieved. Are there any major differences in the two stories? If so, how does one go about getting from todays' experiences to tomorrows'? Is there anything that you can do now to make tomorrow begin to happen today? What changes, if any, could or should occur?

ACTIVITY B: ACTING ON YOUR IDEAL OF A QUALITY LIFE

Have students draw three columns on a page in their notebooks. Ask them to make a list of things they would like to change in the first column followed in the second by their ideas on how they might make this change happen. After five or ten minutes divide the class into groups and ask each student to reveal one item he would like to change. He then is to hear possible solutions offered by his groups. The third column on his paper is used to record these suggestions. When he has enough suggestions, it is time for another person to offer an item.

Some sample situations may be these:
How do I control my life more?
How can I have more fun at work or in school?
How do I make friends?
How do I quit smoking, drinking or taking drugs?

Some time later, if desired, a progress report on the success of achieving a more quality life from these suggestions can be examined.

Because this unit is only to last from four to six weeks, it will be impossible for the students to have much chance to follow through on their action plans before the course is finished. Hence, it is suggested that those students who are interested have the opportunity to continue to meet weekly or biweekly to see how well they are following through on their plans and to help each other make realistic changes to meet their goals.

The process that this unit will hopefully reinforce within the student is a never ending one. The student will have to make a real commitment to trying to attain a quality life, because a great deal of effort and perseverance will be required. Any assistance the individual can get is important and may help him come closer to making his life the way he wants it to be. For this reason, we suggest that the opportunity to continue to meet with a group of people similarly committed is very important, if not essential, to beginning to have a quality life.

ACTIVITY C: SHOW AND TELL

Have the students design their own way of showing what they have learned from this unit. How did they gain awareness? How have they changed? What do they know today or wonder about that they didn't when the unit was started? Examine all the work done and activity results. Share the notebooks of experiences.

APPENDIX A:
SOURCES FOR STUDYING OTHER CULTURES

Here are some possible sources of cultural studies. You can find more at a good library.

Benedict, Ruth. *Patterns of Culture,* Boston: Houghton Mifflin Co., 1959. In her book, Ms. Benedict discusses culture generally and details three different cultures: the Pueblo Indians of the Southwest, the Dobu Islanders off New Guinea, and the Indians of the Northwest coast of America. The descriptions vary from 43 to 73 pages and are well written.

Castaneda, Carlos. *The Teachings of Don Juan: A Yaqui Way of Knowledge.* An interesting but potentially controversial book is *The Teachings of Don Juan: A Yaqui Way of Knowledge,* which details the experiences of a young American anthropology student who became an apprentice to an old Mexican "brujo" or medicine man. For five years, the brujo, Don Juan, taught Castaneda the secrets of his power. Castaneda begins by seeking knowledge of peyote, jimson weed, and other hallocinogenic plants, but finds himself immersed in a totally different cultural perspective. The book is the story of a western man opening himself to a very different cultural outlook and trying to understand and communicate it. It is also immensely interesting.

Coon, Carleton. *A Reader In General Anthropology.* New York: Henry Holt and Co., 1948.

Goldschmidt, Walter. *Readings in the Ways of Mankind.* Boston: Beacon Press, 1957.

Lewis, Oscar. *Five Families.* New York: Mentor Books, 1965. A good book on village life in Mexico, by Oscar Lewis. It reads like a novel but gives an accurate, sympathetic view of village life in a culture of poverty.

Mead, Margaret. *Cultural Patterns and Technical Change.* New York: Mentor Books, 1955. Margaret Mead discusses the cultures of Burma, Greece, the Tiv of Nigeria, and the Palau off New Guinea in short, well-written chapters of from twenty-five to thirty-nine pages. These are written with special attention to the effect of western technology on these traditional cultures.

Sanders, Woodbury, and Schwendeman. *Societies Around the World.* New York: Dryden Press, 1953. The book describes six cultures, including Eskimo, Navajo, Baganda, Chinese peasant, rural Southern United States, and English Midlands.

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TEACHER'S NOTES:

ENVIRONMENTAL INVENTORY

The socio-cultural aspects of our community can be identified through a variety of means. However, prior to our investigation of the community, it might be useful to first determine what it is we are looking for.

Communities develop for a variety of different reasons and combinations of reasons. Some of these reasons may be geographic, political, economic, and cultural. Some communities grow and thrive in or near their original locations. Some are abandoned or bypassed by time and by population shifts. Whatever happened, there were reasons. To fully comprehend the present day community, it is necessary to investigate those elements in its past which influenced and determined its current status.

In some communities, traces and remains of historical development are obvious and easily discovered. In others, the present has obliterated the past and much research may have to be done to unearth the history of the community. Urban, suburban, and rural areas may differ greatly in the ease of access to information on both the past and the present community.

How large an area will be covered and how far back in time the students take their search will depend on their interests and the time and resources available to them. Help can be found in old governmental records: deeds, vital statistics, tax records, and so forth. Grave yards, cemeteries, and church records may be helpful. If there is an historical society or a college or university in the area, students may find invaluable aid there. Another excellent source of information may be found to be the elderly residents of the area who might be willing to reminisce about the "old days."

An objective of this unit is to involve students in experiences which will increase their ability to perceive historical influences and to analyze their impact and importance on the present day community. From these experiences, students will also develop the ability to make predictions about the potential quality of the community in the near future. Along with this, they will develop an ability to identify and predict the socio-cultural problems of the community.

INSTRUCTIONAL OBJECTIVES:

1. The student will have an opportunity to examine the physical setting of his community.
2. The student will have an opportunity to compare his community's background, size, and characteristics with those of other communities.
3. The student will research the history of his community.
4. The student will conduct a data-gathering inventory of his community and its components.
5. The student will have an opportunity to investigate the cultural groups in his community.
6. The student will gather and interpret data in his study of the community.
7. The student will have an opportunity to review his values concerning his community.
8. The student will have an opportunity to study economic and industrial activities of his community.
9. The student will use interpretive techniques and display methods in organizing his study results.
10. The student will be given an opportunity to examine and evaluate proposals for future community development.

CONTRIBUTORS TO THE DEVELOPMENT OF THIS UNIT

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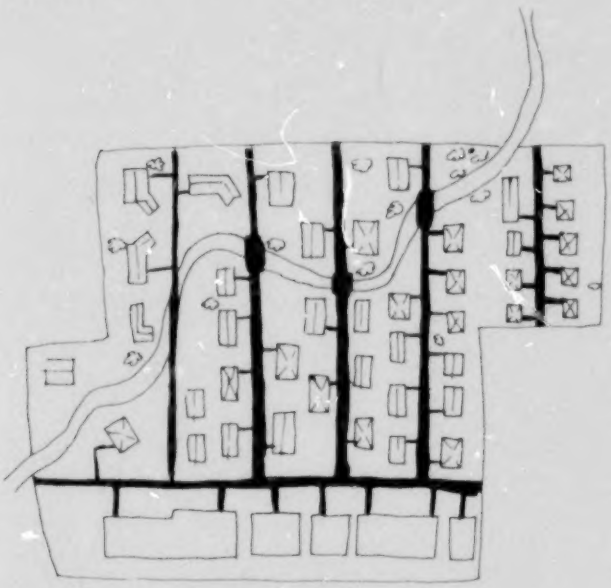
EXPERIENCE #1:
THE GEOGRAPHY OF THE COMMUNITY

OBJECTIVES:

1. The student will have an opportunity to examine the physical setting of his community.
2. The student will have an opportunity to compare his community's background, size and characteristics with those of other communities.

Teacher's Note:
Physical characteristics: To enable students to understand the environmental characteristics of their community, they must develop an understanding of the physical structure of the community. One or all of the following activities will assist you in achieving this end.



ACTIVITY A:
THE COMMUNITY MAP

Using a large sheet of clear vinyl, posterboard, newsprint, or any other suitable material, construct a simple grid. Have the students use this sheet to construct a scale map of the community, working from a street map of the area to be studied. Each student may locate his home on the master map.

ACTIVITY B:

If possible, provide each student with his own map of the area to be studied. These may be obtained from local or county government sources, the AAA, or, in some areas, detailed streetmaps may be purchased on news stands and copied.

Have each student place numbers on his map to designate the locations of places of interest with which he is familiar. He should be able to determine his awareness of his neighborhood in relation to his familiarity with the community as a whole.

ACTIVITY D: A BIKE TOUR

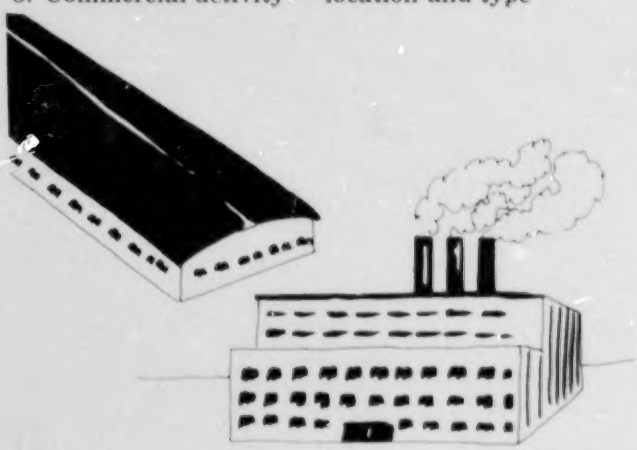
Have your students organize themselves into working teams. Each team should assume responsibility for a specific portion of the area or community being studied. (They may wish to organize their teams on the basis of who lives near whom.)

Each team will plan a bike or walking tour of its assigned area. Have the teams look for significant social, historical, economic, and cultural features. They should also record all topographical features. (steep slopes, long grades, wet areas, rocky areas, sandy areas, rivers, streams); any physical feature which would influence the pattern of area development.

If possible, and cameras and film are available, each group should photograph points of interest in all categories. The groups should then select their best and most significant photographs to be placed on the master map in their appropriate locations.

Each group may wish to begin a process of sorting and categorizing the data it has accumulated. The teacher might suggest some areas of study. For example:

1. The topography — its effects on community development
2. Historic areas — their significance in the past and current status
3. Ethnic areas — evidence of ethnicity (churches, markets, restaurants, clubs, etc.)
4. Industry — classifications according to types and sizes
5. Commercial activity — location and type



The teacher may encourage students to consider the interrelatedness of these areas.

At this time, the teacher should encourage all of his students to locate their community geographically within the county, state, and nation. This may be done by introducing students to a variety of other types of maps, including topographical, geological, railway and roadway maps, historical and outline maps. These not only demonstrate the area's relationship to surrounding geographic areas, but the variety of activities which connect the area under study to other areas as well.

EXPERIENCE #2:
THE HISTORY OF THE COMMUNITY

OBJECTIVES:

1. The student will research the history of his community.
2. The student will conduct a data gathering inventory of his community and its components.
3. The student will have an opportunity to investigate the cultural groups in his community.

Teacher's Note:
When and how did our community achieve its identity? In this section the students will be investigating the community to assess the culture of the groups which came into the area as it was being settled. Much of what they learn about the physical nature of the area will be brought into play during this section. As the next section is devoted to the present situation, most of this section's study time should be spent on what occurred in the past.

ACTIVITY A: COMMUNITY IDENTITY

Much of what we need to know about this section may be learned from existing history books. Indeed, the history books may be the only source for some of this information. However, every student can find out personal information about what the area was like as long ago as seventy or eighty years ago. Parents, grandparents, and great-grandparents are a valuable source of information for this study. Their personal experiences and recollections will be of immeasurable worth. The topics for a questionnaire might include the following:

1. Place and date of birth
2. Place of childhood residence
3. Status of community (urban, suburban, or rural)
4. Education
5. Occupation
6. Reason for living in community

Other questions might include:

1. Religious affiliation
2. Ethnic background
3. Family traditions
4. Location of other family members

Students may begin to explore the history of their area by considering and investigating the answers to questions such as these:

1. Where did our community begin?
2. Who (what group of people) began it?
3. What did they do? (Kinds of economic activity)
4. Where did they come from?
5. What factors determined the site selection?
6. Did the original settlers remain? If so, where are their homes?
7. What prevented or encouraged the growth of our community?
8. How does the geography of the area influence the economic activity?
9. What natural resources are available to the area?
10. How accessible is the community to visitors?
11. How close is the community to other population centers?
12. Were these areas around this community settled before or after this community?

The students may develop their questions relative to the history and background of their community. They should be encouraged to do this.

Try to spend at least one day just introducing the idea of a questionnaire. Don't be afraid to spend some time developing, administering, and evaluating a questionnaire. It may provide untapped information.

It will be helpful if the students take their maps with them when they go to question people. Quite often the area will have changed and the maps will help to clarify this. Students may wish to take photographs of the areas and may ask permission to photograph their elderly informants.

ACTIVITY B: AN ALTERNATIVE PLAN

If you don't feel comfortable with this method of gathering information, or you don't have time to develop and administer a questionnaire, there are innumerable resources available in any community. The first source will be the local historical society. After that, inquire of any formal organization with a heritage. Your students could go and visit these groups or individuals or they could come to speak to the class.

After these sources, the next most interesting source of information will be the local newspapers and libraries. They will both include information for a great number of years. However, keep in mind this may be perceived by students as a tedious way to get this information.

Once the student teams have their information, they can focus on one aspect. They should spend time compiling and analyzing their data. It will help to have large poster board available for displaying data. It will also be useful to have an area for the students to display their work. If they do not wish to make formal displays, they may want to have time to exchange information with other groups informally.

EXPERIENCE #3: ENVIRONMENTAL QUALITY IN OUR COMMUNITY

OBJECTIVES:

1. The student will gather and interpret data in his study of the community.
2. The student will have an opportunity to review his values concerning his community.
3. The student will have an opportunity to study the economic and industrial activity of his community.

Teacher's Note:
Much of the socio-cultural make-up of the community is affected by the government and industry of the community. In this section we will use two techniques to get to the final product. The first technique is an Environmental Quality Survey. This survey provides a means of assessing the overall quality of the community. We will consider this part Project One. The second project involves the use of a phone book in gathering information about the community.

ACTIVITY A: RANKING COMPONENTS

If students have taken photographs of the community in conjunction with Experience 1, Activity C, they may divide them into the following categories:

1. industries (light and heavy, clean and dirty)
2. shops (grocery, malls, trades, small centers)
3. churches (old and new)
4. homes (condominiums, shacks, single family apartments)
5. schools (old, new, public, parochial)
6. traffic (1 person in a car, busses, cabs, trains)
7. streets (expressway, sidestreets, and main streets)
8. parking (lots, structures, streets, crowded)
9. advertising (billboards, flashing lights, neon signs, etc.)
10. traffic devices (stop signs, yield signs, turn lanes, police)

If photographs are not available and money and equipment for taking pictures is out of the question, students may find pictures in newspapers and magazines depicting these scenes.

Each student should have his own copy of the list of categories. Depending upon the nature and size of the community under study, the students may wish to add or delete categories. They should be encouraged to do so. They should have a sufficient number of photographs — at least two for each category so that there may be "good" and "bad" examples.

Ask the students to rank each picture according to the following scale.

plus 2 — real positive effect on environmental quality

plus 1 — slight positive effect on environmental quality

0 — unsure or no effect

minus 1 — slight negative effect on environmental quality

minus 2 — great negative effect on environmental quality

After each student has had an opportunity to rank each picture, have them meet with their teams and develop a group ranking for the team. They should be encouraged to reach consensus by fully discussing each ranking which involves uncertainty or disagreement so that each group member has an opportunity to express his opinion.

Where the groups have finished, have the class meet together and have each group share its rankings with the rest of the class. The entire class, then, should be encouraged to establish criteria for judging positive and negative effects on environmental quality.

You may wish to record their criteria on the chalk board or reproduce them so that each class member may have a copy.

ACTIVITY B: EVALUATING THE COMMUNITY

Have the student teams return to their areas of the community selected in Activity A. Each team will cover its area on foot or on bikes, looking for examples of positive and negative environmental effects on the test. The team will then record the indicators each time they appear. Each area may then be determined to have either a positive or negative environmental quality. From this, students will then have data which can be placed on the master map.

Depending on the size of your community and the number of students, you may have an accurate assessment of your community. If your community is large, and the number of students is small, you may wish to establish a random sample of the area to be studied.

When all of the data has been collected and placed on the map (plus in green, minus in red), your students will be able to locate problem areas in the city. Have each team select an area of interest and take a close look at the data to see what caused the negative effect.

ACTIVITY C:

Using the phone book as a resource, the students may compile a list of city departments, their areas of responsibility, phone numbers, directors, addresses, etc., dealing with each group's area of concern in the community.

The objective is to identify what group in the city will have information about the topic. Once the students have identified these resources, they may select students to call these individuals or offices to get the necessary information about the community. They should be looking for any and all information relating to their particular area of concern.

Additionally, have the students search the phone books for socio-cultural organizations. They should look under clubs, associations, fraternal organizations, etc. in the yellow pages. A phone call to these groups will provide additional, non-governmental information.

ACTIVITY D:

Much of the socio-cultural make-up of the city may be directly related to the industry of the area. If students investigate the industries in the community, they can also learn something about the economics of an area. How would a strike or shut-down at the largest plant affect the community? What groups would be affected?

To find out the economic make-up of the school community, have each student ask ten of their friends where their parents work. Be certain they take the name of each person asked. Have the students eliminate all duplication. They may graph the data by the following categories:

1. types of jobs
2. types of industry
3. types of professions
4. any others which may occur to the students

The students may want to work out the percentages for each group. If possible, have the students diagram the interdependencies among the various groups. They should be looking for who depends upon whom. One outcome of this will be an understanding of the interrelatedness of culture, economics, and industry in the community.

EXPERIENCE #4:
INTERPRETATION OF DATA

OBJECTIVES:

The student will use interpretative techniques and display methods in organizing his study results.

ACTIVITY A:

Up to this point the students have been working on a number of related areas. It is now time to bring all of the data together in a single unit dealing with the socio-cultural make-up of the community. The students may be overwhelmed by the sheer quantity of the data. They may wish to develop an organizational format.

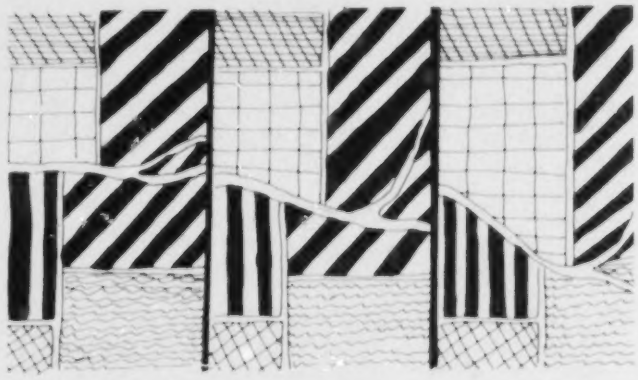
Among the ways they might want to use the data are these:

1. The history of our community
2. The geography of our community
3. The people of our community

This list may give them a starting point.

ACTIVITY B:

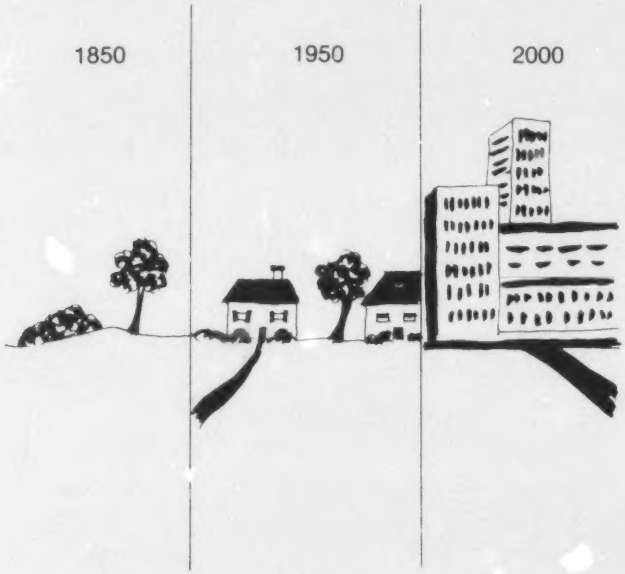
To display the data, the students have already employed two methods: maps and photographs. Students may wish to make story boards of their photographs, telling the history of the community or describing its economic activity. They may wish to make transparencies of their maps with overlays describing the evolution of their community. They may also wish to make a slide-tape presentation about their community; past and present. They should be encouraged to be creative and original in their use of data.



EXPERIENCE #5:
WHERE ARE WE GOING?

OBJECTIVE:

The student will be given an opportunity to examine and evaluate proposals for future community development.



ACTIVITY A:

At this point the students should be very familiar with the socio-cultural aspects of their community. They should also be able to place the community in perspective with the surrounding communities and the rest of the nation. As an extension of this background, ask them to use their data to predict what changes they expect their community to go through in the coming years.

Changes will depend upon the history of the community and the nature of its population. Some of the data they may find particularly useful are the following:

1. Changes in population over time
2. Changes in forms of transportation
3. The direction of new highways
4. The sites of new industries and businesses
5. The nationality of people moving into the area
6. The income trends
7. The educational trends
8. The sites of new homes

Much of this information may be available from local governmental planning agencies. Students may wish to contact bankers for economic trends, large industries (if any) in their area for industrial expansion plans, local zoning boards, contractors, real estate developments, etc.

With this information in hand, they should be encouraged to look at the future of their community, creatively and constructively.

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United States Geological Survey

Aerial Photographic Reproductions (10 pages)

Geologic Maps: Portraits of the Earth (20 pages, 30 cents)

Selected Bibliography on Maps and Mapping (8 pages)

Topographic Maps (24 pages)

Types of Maps Published by Government Agencies (10 pages)

Single copies and multiple copies can be obtained from a distribution branch:

Local Distribution Branch
U.S. Geological Survey
1200 South Eads Street
Arlington, Virginia 22202

Your own community's telephone book.

TEACHER'S NOTES:

ENVIRONMENTAL MANAGEMENT

The general purpose of this unit is to provide the opportunity for senior high school students to become aware of how their own community identifies and deals with the management of the environment. This will be accomplished by a detailed analysis of the community, both in the historical sense and in the light of present conditions and problems. The unit is intended to be of a critical nature in that both strengths and weaknesses must be sought.

The students' own community is the base for the study. Therefore, the unit is constructed to accomplish the instructional goals in a variety of community settings. The materials are organized under headings which will be generally appropriate to any community, regardless of size, and the questions posed are typical ones that require answers from within any community. Situations within a specific community may call for greater or lesser consideration in one or more areas. The unit is intended to be flexible because focus on these areas must be determined locally.

Emphasis is placed upon the function of the student as investigator, organizer, and assessor of the information needed to understand environmental management. The teacher will help students develop the necessary skills to gather and use appropriate data from local sources such as libraries, agencies, and institutions. Contacting and communicating effectively with community leaders and agencies are major skills that will be necessary. Students should be encouraged to plan and make arrangements for field experiences. Students should also arrange for community resource persons to make presentations to the class.

INSTRUCTIONAL OBJECTIVES:

1. The student will become aware of the concept of environmental management and be able to analyze the community's approach to conditions and problems of the environment.
2. The student will relate the historical perspective of community development to current patterns, trends, and problems.
3. The student will develop skills necessary to meet objectives number 1 and 2:

   a. To discover and investigate local sources of information.

   b. To organize and assess date.

   c. To interact with community leaders and workers.

   d. To use community maps to present and interpret data.

CONTRIBUTORS TO THE DEVELOPMENT OF THIS UNIT

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EXPERIENCE #1:
LOCATION AND DEVELOPMENT OF COMMUNITY

OBJECTIVES:

The student will relate the historical perspective of community development to current patterns, trends, and problems of the environment.

Teacher's Note:
This section is to be completed by all students within the class, primarily for the purpose of providing general background in terms of community origins and historical development. Mode of presentation might go several ways; however, because most of the rest of the unit should be studies by use of student investigating teams, it is recommended that the teacher take the lead in this introductory section to set a reasonable tempo and to provide a solid basis upon which to build.

ACTIVITY A:
LOCATION OF COMMUNITY

Teacher's Note:
The Inventory Unit also has development of the historical perspective of community development.

Determine why a community was established in the location of this community originally. This will call for consideration of geographic factors along with a strong dose of local history.

Among sources of such information are local history books or articles, often found in public libraries and sometimes in school libraries; the local historical society; the county clerk's office; and "old timers," who are generally flattered to be asked to share their memories. Other potential sources are local geologists, agricultural extension agents, and Park Service agents.

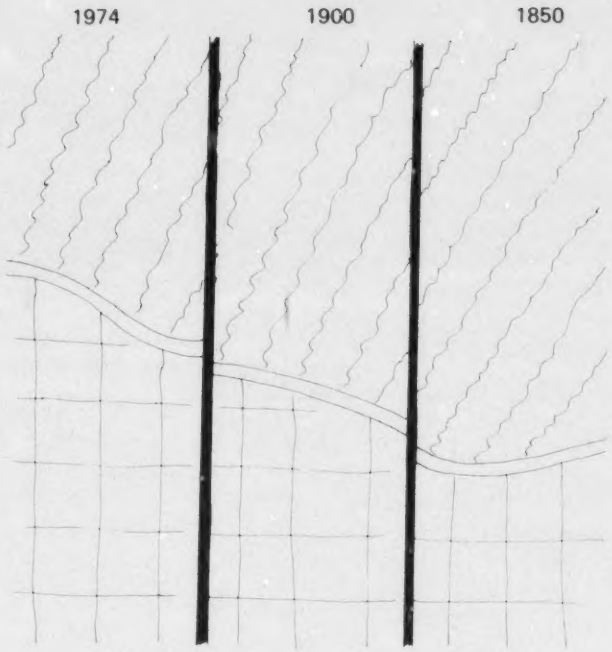
Among the factors often of significance in the original establishment and/or flourishing of communities are these:

1. Proximity to convenient modes of transportation such as Lake Erie, the Ohio River, the Ohio Erie Canal, railroads, etc.
2. Proximity to natural resources, such as iron deposits, timber, etc.
3. Favorable location with respect to farmland, etc.
4. Climatic factors.

ACTIVITY B:
DEVELOPMENT OF COMMUNITY

Trace the development of the community from its inception to the present in terms of these:

1. Population growth, including specific local population data, over the time interval from beginning of the community to the present. Types of population (ethnic, occupational, etc.) are of particular importance here. Such data is available from such sources as local historical documents, the Chambers of Commerce, census tracts, etc.



Possible exercise - graphing, showing population as a function of time. In addition to total population, separate graphs or super-imposed graphs may be prepared, showing changes in ethnic group populations, occupational group populations, and the like. For places where there are rapid changes in pattern in the graphs, attempt to identify causal or related factors.

2. Territorial expansion of the community and the causes of it. Possible exercise - mapping, whereby students make their own maps based on available historical data of their own community, showing changes with time. The intention here is not for a topographic exercise, but a street/building/business area/industry/housing series of maps, showing the changes over time. Include increases in suburbanization, if applicable. A useful supplement or alternative to this activity would be the preparation of a series of wall or bulletin board maps (i.e., 1840, 1860, 1880, 1900, 1920, 1940, 1960, 1974, or whatever) prepared by students with accompanying photographs and/or drawings keyed to the maps and indicating how the community has changed.

3. Increases in industrialization, with attendant considerations:
   a. The entry of new industries, with concomitant growth (or, in some cases, disappearance, as their reasons for existence or supporting requirements disappeared.)
   b. Employment data - numbers, traced historically (such data are generally available from any industry); types of labor needed (skilled, unskilled).
   c. The influence of each industry on population, local economy, etc.

d. The favorable and unfavorable environmental impacts of each industry.

Using information from the above research, the class can discuss what would happen to the community if a given industry should leave. The economic, political, social and environmental consequences should all be considered. For games of future projections, consult the unit on Futurism.

EXPERIENCE #2: ENVIRONMENTAL MANAGEMENT WITHIN THE COMMUNITY

OBJECTIVES:

The student will become aware of the concept of environmental management and be able to analyze the community's approach to conditions and problems of the environment.

Teacher's Note:

This section is made up of a series of potential topics for team investigation. It is intended to develop a comprehensive picture of how the community interacts with and is interdependent with its various environments, both local and external. For some communities, one or more of these topics may not be pertinent and/or other major areas of concern may be of greater pertinence. In such cases, topics may be disregarded or added as appropriate. It is suggested that added topics be developed in the same general pattern as those already written.

If the seven topics suggested here are used, student teams may be assigned to investigate each. A variety of reporting methods are possible. Each team could report, whether it be on paper for the teacher or orally to the class; the latter is probably preferable, but it could lead to difficulties in terms of time required for reports. Each investigating team may prepare a 15 minute report to the class, thus requiring the teams to organize and streamline their presentations in such a manner that they get to the heart of the matter and remove extraneous material from their oral reports. Students should *not* be held responsible for the details of one another's reports but for the generalizations which may come from them. It is enough if they master the detail of their own reports plus that information which is studied by the class as a whole. Reports should emphasize the use of visual materials such as maps and graphs prepared by students.

ACTIVITY A: POLLUTION PROBLEMS

Make a matrix of community pollution problems, as opposed to sources.

See the example below.

For each square in which a mark is made, attempt to track down the specifics of the case, such as these:

1. Description of the problem.
2. Specific causes.
3. How the problem has grown or otherwise changed over the recent past.
4. The efforts being made to control the problem.
   a. Politically, including by government agency.
   b. Economically.
   c. Socially
   d. Scientifically.
   e. By the polluters themselves.

Some attention may be paid to the work of the state and federal Environmental Protection Agencies, methods of assessment of environmental impact (see United States Geological Survey Bulletin 745, *A Procedure for Evaluating Environmental Impact*, by Leopold, *et al.*), and the work of the State Departments of Natural Resources and Health, as well as local health agencies.

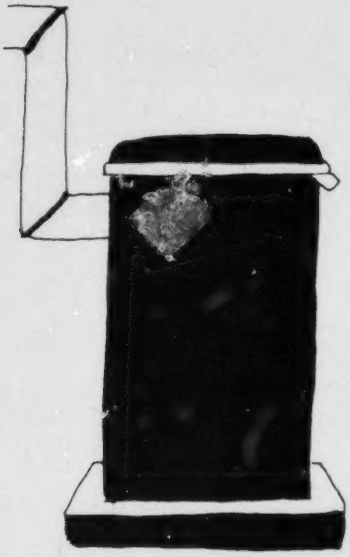
ACTIVITY B: SOLID WASTE DISPOSAL (OR RECYCLING)

Find out how the community disposes of its solid wastes; landfill is the usual method. Determine whether the site is community-owned, leased, or privately owned or operated. Determine what health problems must be considered, what regulations exist, and what safeguards are taken. In particular, find out what the law requires and how well it is met. Such information may be available from the landfill operator himself, from the local health department, or from the state Environmental Protection Agency.

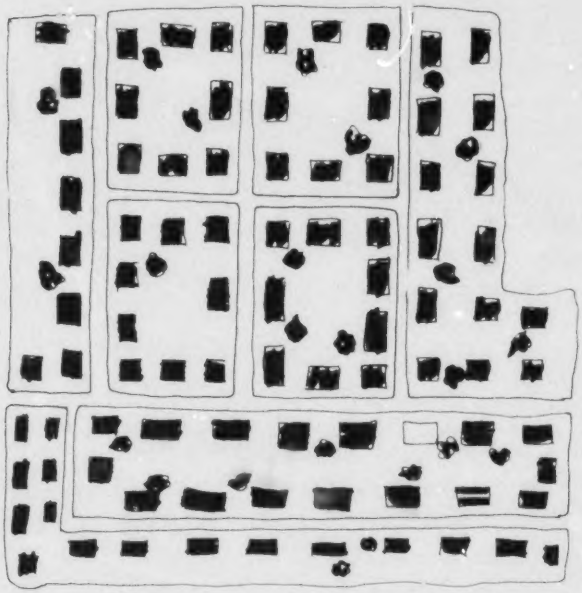
Find out the projected life expectancy of this landfill, find previous community landfill sites, and determine how they are currently used; and find out what plans and projections are being made against the day when a new landfill will be needed.

Determine what possibilities exist for recycling in connection with the current operation.

	Transportation	Residential	Industrial	Commercial	Agr.	Other
Air						
Water						
Solid Waste						
Noise						
Land						
Other						



There is an excellent field trip possibility for the team investigating solid waste management as well as for the entire group. Whether or not the local landfill manager is willing to permit such visits is likely to vary from community to community. A major consideration here must be in terms of liability in case of accident. A particularly interesting activity is to check water quality in nearby streams or ponds. A science teacher (particularly a chemistry teacher) may be of help here in providing simple testing materials, such as Hach kits and pH paper.



ACTIVITY C: LAND USE

Secure an aerial photograph of the community, perhaps from city hall, the United States Soil Conservation Service, United States Agricultural Stabilization and Conservation Service, or another agency. (Such photos are normally available at small cost.) Use the photograph as a base to make such maps as may be needed or useful for this or other units. Use it as a bulletin board, use it to locate (by means of map tacks) features studied during the course of this topic and of the entire unit.

1. How is land within the community currently used? Use a community map to determine locations and extent of parks within and near the community; determine what segments of the community are served by each park, what facilities are available in each park, and what use patterns are evident. Such information is available from the director of the local park unit or from the "head man" at each of the local parks. Ambitious teams might determine some of it by survey, though this technique requires considerable time.
2. Make a community map showing legal zoning patterns; mark any variances on it. Find out why these variances were granted (such information comes from city hall and the county clerk's office.) Also find out why zoning was instituted in the first place. Find out what the zoning laws are in the community, why they were established as they were, how they have been changed, and what additional changes may be projected. Also find out how variances may be secured.
3. Determine where people live in the community in terms of ethnic and/or socio-economic groups. Why do some people live in slums and some in suburbs? Represent on a map various ethnic and/or socio-economic groups in the community.

ACTIVITY D: WATER SUPPLY AND SEWAGE DISPOSAL

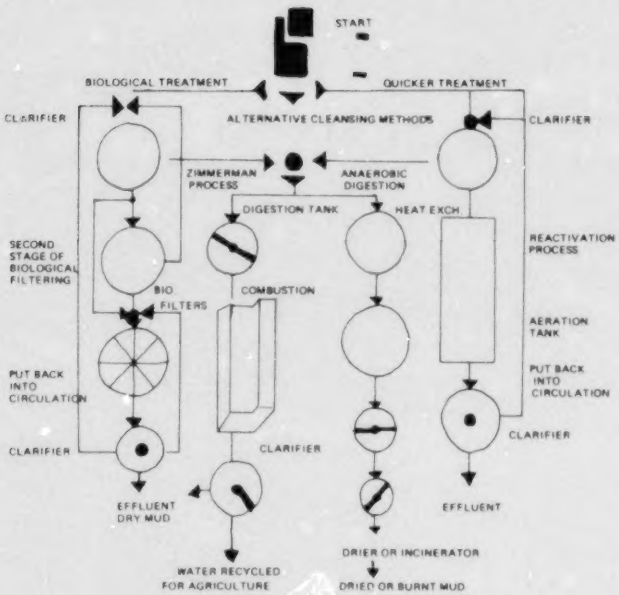
It is possible to split this topic into two topics for investigation. In such cases, the section marked "1" could constitute one investigation, and the section labelled "2" could constitute the other.

1. *Water Supply*

Determine where water for the community comes from; trace its movement from source (natural lake, reservoir, river or stream, aquifer via springs or wells, etc.), through purification, to home, business, and industry. Find out what costs, economic and environmental, are associated with securing, purifying, and delivering water to each user group, and how these costs are borne and shared.

Possible field activity: Visit a water treatment plant. Some of this investigation may already have been done in science classes and may furnish the opportunity for cooperation between science and social studies departments and teachers. The science teacher will identify the scientific aspects of the problem, while the social studies teachers will focus on the politics and economics of the process.

A possible mapping exercise: diagram water movement from source, through treatment, to users. Then these considerations can be combined with those under "sewage disposal."



2. *Sewage Disposal*

Determine where liquid wastes go when they leave the home, industry and commercial enterprise. How are they treated as they go through the sewage treatment process? What scientific and technological steps are taken? How are costs met until these wastes are returned to "nature"?

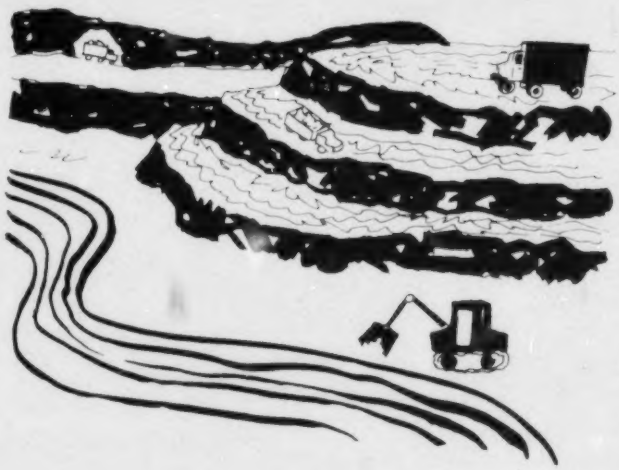
What other communities in the region are making use of your community's waste water? Whose waste water are you using? Are these communities "doing right" by each other? How or how not?

Possible field activity: Visit a community sewage disposal plant, The comments made above relative to cooperation between social studies and science departments and teachers apply here.

ACTIVITY E: ENERGY NEEDS

Make a survey of energy needs within your community. Develop a matrix indicating, on one axis, energy sources or types directly utilized, and on the other, user types, viz.:

This assignment can be completed either sketchily (that is, with X's in appropriate boxes) or with hard data. Such data is generally available from utility companies (for natural gas, electricity and nuclear power), wholesalers and distributors (for oil and gasoline), and retailers (for coal). Quantification will make the exercise significantly more meaningful. It may also be useful to consider the area of energy used by governmental and/or quasi-governmental agencies.



Specific sources of supply of each of the fossil fuels utilized within the community should be identified, leading to consideration of the following:

1. modes of transport of the fuel (coal, oil, natural gas, gasoline) or of the form of energy (electricity) from source to community.
2. environmental problems caused by extraction processes.
3. environmental impacts caused by fuel use within the community (Whether or not this is specifically detailed here depends on how the teacher chooses to treat Topic A, Pollution Problems.)
   a. industrial
   b. agricultural
   c. commercial
   d. governmental

	Home	Agriculture	Transportation	Commercial	Industrial
Coal					
Oil					
Natural Gas, etc.					
Gasoline					
Electric					
Nuclear					
Other (specify)					

e. residential
f. transportation (In Ohio, this is of particular interest in the Cleveland, Cincinnati, Columbus, Dayton, and Toledo areas.)

4. limitation of supply of fossil fuels

Some consideration should also be given to the "energy crisis." Alternative management possibilities related to "new" or "different" sources of energy should be included.

ACTIVITY F: TRANSPORTATION

Determine what changes in transportation patterns have taken place both within the community and in connecting the community to the "outside" from the beginnings of the community to the present time. Determine if changes in transportation patterns have favored one group or some groups. Also determine what future transportation innovations are projected. Consider both public and private transportation; pay particular attention to highways.

1. What transportation facilities are available to those who do not drive? Are such persons in effect discriminated against? If so, how?
2. How can one get into or out of this community to or from the "outside" if one does not drive? What effects does this have on people's lifestyles?
3. What facilities are available for freight transportation? How do these affect the environment?

ACTIVITY G: COMMUNITY FOOD SUPPLY AND DISTRIBUTION

Where does food for this community come from? How much of what is locally produced? What relationships exist between the community and surrounding rural areas, in terms of production of foodstuffs, for the community? How much of the food is imported from greater distances? How is food transported? Is this similar to transportation for other commodities?

A question to investigate or ponder: Could this community exist in isolation from surrounding rural areas? Could it exist in isolation from the rest of the state? Could it exist in isolation from the rest of the country or world? In other words, what does the community use that isn't produced locally; what does the community need that has to be obtained from the outside of the community?

What tradeoffs are made? What does this community furnish that others use or need in exchange for what is used or needed in this community?

EXPERIENCE #3: SUMMARY - COMMUNITY GOVERNMENT AND ENVIRONMENTAL MANAGEMENT

Teacher's Note:
This summary section is to be completed by all students within the class, primarily for the purpose of drawing together and sharing experiences encountered in the first and second sections. The teacher should take the lead, but at this point he should seek, if not demand, a great deal of student input, particularly in terms of their investigations in the second section. With some groups, it may be appropriate to omit "formal" class reports of the results of investigations in the second section, instead relying on the problems posed in this section to bring out the pertinent data.

ACTIVITY A: GOVERNMENTAL SERVICES

What services must a local government provide to manage the environmental concerns such as those detailed in the investigations of the second section? How are these responsibilities for service shared with township, country, state, and federal governments?

ACTIVITY B: FUNDING SOURCES FOR LOCAL GOVERNMENT ENVIRONMENTAL MANAGEMENT SERVICES

Where does the money come from to support the services of the local government? Local government agencies have such data available and will share it, if you make clear what is wanted. How are federal and state monies coming into the local community used? How are monies shared among various local and regional agencies?

Within the community, how are funds raised?

1. Real estate taxes
2. Income taxes
3. Sales taxes
4. Permits, licenses, etc.

Figures for the above are available from city hall and/or the county clerk's office. They are a matter of public record and readily available.

What parts of community funds are raised from business, industry, and individuals? Use real data; work into percentages. On a community map, lay out by wards the information about where tax monies come from. This is most easily done in terms of real estate taxes.

ACTIVITY C:
DISTRIBUTION OF PUBLIC MONIES FOR COMMUNITY ENVIRONMENTAL MANAGEMENT

How is tax money used within the community? Make a percentage analysis of uses, using the local budget for the most recent year. Attempt to categorize by line-item uses (roads, parks, etc.) and by geographical sector of the community. The latter may turn out to be quite complex, depending on the forms in which the data are available. However, it will be instructive to see from which parts of the community money comes and into which sector it goes.

ACTIVITY D:
ENVIRONMENTAL MANAGEMENT AGENCIES IMPACTING THE COMMUNITY

Make a brief study of those units of government which are responsible for management of the environment within the community. Consider the following:

1. Federal Agencies: Health, Education, and Welfare; Agriculture; Environmental Protection Agency; etc.
2. State Agencies: Department of Natural Resources; Environmental Protection Agency; Department of Health; etc.
3. Regional Agencies: Ohio River Basin Commission; Regional Air Pollution Control Agency; Regional Planning Commission; etc.
4. County Agencies: Department of Highways; Department of Health; etc.
5. Local: City and County Planning Agencies; Local Health Departments; etc.

The above "list" of agencies is both incomplete and garbled, in part because a variety of agencies exists in communities, towns and regions as dictated by local needs and organized, at least in theory, to best provide the necessary services. Teachers should develop their own lists, perhaps starting from the above, perhaps starting from scratch. Questions need answering concerning each:

1. What functions was each organized to serve?
2. How is each organized to serve them in terms of staff, etc.?
3. What funding sources does each have and what type of budget does each have?
4. How successful is each in serving its stated function?
5. How might each be altered to improve its effectiveness?

The specific purpose of the summary section is to draw together the experiences of the group and to leave a positive but realistic picture of the environmental management situation in the local community. For this reason, federal, state and regional agencies should be considered only in the local context. Negative factors should be pointed out and considered where appropriate, but care must be taken not to be overly negative or to leave a hopeless feeling. Emphasis must be placed on how improvements might be made and on how various improvements might be of long-range value.

REFERENCES:

TEACHER DATA BOOKS

Teacher's Note:

The following publications would constitute a nucleus of a data source collection for your school library. Secondary students should be able to use these sources with little difficulty. Junior High School teachers may find it necessary to simplify and summarize the relevant data for their students.

Congressional Quarterly Service. Congressional Quarterly Guide to Current American Government (Yearly Spring and Fall editions) Congressional Quarterly, Inc., Washington, D.C., 1974.

Economics Research Division, Development Department, State of Ohio. *Statistical Abstract of Ohio*, Columbus, Ohio, 1969.

Office of the Federal Register, National Archives and Records Service, General Services Administration. *U. S. Government Manual*, USGPO, Washington, D.C., 20402 ($4.00 - annual editions).

Nader, Ralph Congress Project, (Series). *Citizens Look at Congress*, (Individual Profiles available for U.S. Senators and Representatives), Grossman Publishers, Washington, D.C. ($1.00 each).

Rose, Albert H. *Ohio Government - State and Local*. Fourth Edition, Kendall/Hunt Publishing Company, Dubuque, Iowa. 1974.

Skinner, Richard. *Ohio Socioeconomic Data Book*. Market Research Associates, 207 Valley View Drive, Kent, Ohio. 1972.

U.S. Bureau of the Census, *Census of Housing: 1970, General Housing Characteristics*, Final Report, HC (1) - A37 Ohio. U.S.G.P.O., Washington, D.C. 1971.

U.S. Bureau of the Census. *Census of Population: 1970, General Social and Economic Characteristics*, Final Report PC (1)-C37 Ohio. U.S. Government Printing Office, Washington, D.C. 1972. ($4.25)

U.S. Bureau of the Census. *Census of the Population:1970, Number of Inhabitants in Ohio*. PC (1) A37 Ohio, U.S.G.P.O., Washington, D.C. 1971.

U.S. Bureau of the Census. *County and City Data Book, 1972*. (A Statistical Abstract Supplement). U. S. Government Printing Office, Washington, D.C. 1973. ($12.50)

U.S. Bureau of the Census. *Historical Statistics of the United States, Colonial Times to 1957*. U.S.G.P.O., Washington, D.C., 1960. Supplements are also available.

U.S. Bureau of the Census. *Statistical Abstract of the United States: 1973*, 94th Edition, U.S.G.P.O., Washington D.C. 1973 ($6.30) (Yearly editions available).

Warren, Roland L. *Studying Your Community*. The Free Press, New York, 1965.

POLITICS OF ENVIRONMENT

It is possible to be an expert ecologist — to have great knowledge of food chains and energy systems — and be totally ineffective in resolving environmental problems. Scientific information in such fields as sanitation engineering, nuclear physics, and population genetics is certainly helpful and necessary to resolving environmental problems. But also necessary, as necessary as scientific expertise, is political skill and economic understanding.

Most environmental problems are far more complicated than right or wrong, or yes or no. Without acceptance of this thesis, very little real progress can be made in solving environmental problems. This unit is designed to graphically and comprehensively point out the real complexities of solving environmental problems, and to suggest a method for dealing with these problems.

To accomplish this purpose, three geographical settings — urban, suburban, and rural — are treated as they interrelate. The focus of this unit is, naturally enough, on the political and economic realities of wise and practical environmental protection. More specifically, the focus of this unit is on the intricate overt and covert political actions that affect ecological decisions and on the economic entities that influence the political actions. The actual instruction is in the form of case histories, problems to solve, roles to play, and games to participate in. More emphasis is placed on seeing, understanding, and experiencing the divergent positions within our society on environmental issues than on the collection of specific factual ecological information.

The unit on Political and Economic Reality has as its major instructional objective for the teacher to cause the students to develop an awareness of the complexities in attempting to solve environmental problems. More specifically the intent is to examine the political and economic aspects of environmental problems and attempt to come to grips with them.

The unit is divided into two major sections. First is the story-line activity section. In this section are five short story lines with five corresponding activities series interspersed. Each storyline presents a problem which is "solved" in the activities. *Each series of activities involves more intricate problem-solving skills than the last.* Instructions and suggestions are given with each series of activities to allow the teacher several options of how he wishes to approach the solution of the problem. It should be emphasized that the use of the term "solution" does not necessarily mean that an actual solution is made to the problem. The emphasis is on approaches to the problem, since real solutions may be impossible to attain with many different interests represented in each problem.

The second part (included in the appendix) is made up of two models, a Political Action Model and an Economic Action Model. These two models are also presented in order from simple to complex and are designed to be used with the activities to add a more comprehensive dimension to their solution. In addition, each model alone gives the student some insight into political and economic aspects of environmental problem solving. Detailed instructions are given with each of these models.

A general suggestion for the use of the entire unit is for the teacher to first read through the entire package. The teacher, knowing the capabilities of his students, may then choose the approach that best fits those capabilities. More detailed suggestions and instructions are given with each section.

CONTRIBUTORS TO THE DEVELOPMENT OF THIS UNIT

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INSTRUCTIONAL OBJECTIVES:

The students will develop an awareness of the complexities in attempting to solve environmental problems.

1. Environmental problems have many points of view.

   Each point of view of a problem may have equally logical arguments supporting the acceptance of that view.

   One environmental problem often will have many different viewpoints rather than just two.

   The solutions of environmental problems are often hampered by the inability, or even refusal, of people with special interests to consider any other position.

2. The students will understand that most environmental problems have both political and ecological aspects.

   Often the political aspects prove tougher to solve than the ecological ones.

   It may be necessary to deal with several levels of government to solve an environmental problem.

   Non-political governmental agencies complicate the solution of environmental problems.

   The solution of some environmental problems is complicated by the necessity for dealing with two or more equal political subdivisions.

   Some political actions on environmental problems are unrelated to ecological or economic considerations but rather are solely political.

3. The students will be made aware that it is a rare environmental problem whose solution does not involve economic aspects.

   The solution of environmental problems usually costs money.

   The non-solution of environmental problems may often cost money.

   It is the general public that usually pays for environmental problems.

EXPERIENCE #1
ALL-AMERICAN CITY, PART I

OBJECTIVE:

To develop an awareness of the complexities involved in solving environmental problems.

Teacher's Note:
Storyline One should be presented to the students either in its original form or in an altered form at the discretion of the teacher. The most basic use of Storyline One would be for the students to read it and discuss its meaning and possible solutions. The teacher should feel free to use the raw information to structure any activity he deems appropriate. If the level of the students warrants it, the teacher may desire to study the problem presented in Storyline One by using the activities which follow.

Storyline One:

All-American City looked just that — all American. It had a population of 100,000, and lay in the open farmland of the mid-west over 120 miles from the nearest large city. There were only a few local industries, and All-American City seemed a most unlikely place to find evidence of an environmental crisis.

One day a sample of water was sent to the local health department for testing. It contained a nitrate level somewhat above the 45 ppm standard. A nitrate level of 45 ppm was fairly common in water from country wells in the area. However, this sample came not from a farm well, but from All-American City's own water supply.

The city obtained its water from Lake Cloudy, an impoundment of the Big Muddy River. Tests soon showed that both lake and river water had a nitrate level of about 45ppm. When spring turned to summer the value went down. However, the nitrate level rose the following winter so that by spring it again reached the dangerous level of 45 ppm.

After the cycle repeated another year, a possible source of excess nitrate was found: the fertilizers used on the surrounding farmland. The fertilizers were washing into small streams which emptied into the Big Muddy. It should be understood that after World

War II, the cost to the farmer to produce food has increased much more rapidly than the value of his crops. The use of nitrogen fertilizers, a relatively cheap item, lowers the cost of food production for the farmer and thus increases his profit. A problem can be seen arising. If excessive fertilizing pollutes drinking water to the point of danger to human health and life, the use of this fertilizer must be reduced. However, reducing the use of fertilizer raises the cost of producing food for the farmer and eventually the cost for the consumer.

Complicating the situation was the attitude of the fertilizer industry, a two-billion dollar enterprise. The manufacturers of fertilizer certainly didn't want to see a reduction of fertilizer use and production. The fertilizer industry was soon pursuing its legislative lobbyists at various governmental levels. Another group of interested individuals was that of the agricultural scientists. The great use of nitrogen fertilizers came about primarily because of the research and urging of scientists. It would be difficult for them to retract all that they had formerly felt about nitrogen fertilizers.

(The problem, of course, is what, if anything, is to be done about the water polluting fertilizer. Since we are interested, in this section, in the political and economic aspects of environmental problems, we will assume that something should be done about the fertilizer and will put little emphasis on debating the issue of whether or not fertilizer is harmful to drinking water.)

ACTIVITY A:

Teacher's Note:
As is emphasized in the instructional objectives accompanying this unit, there is usually no one answer that will satisfy all parties. There is only a compromise, often achieved to the advantage of the most clever party. If a gaming activity is used, the playing may turn out to be a debate, in which facts count for less than oratory and popularity of the participant. It is often this way in "real life." The teacher might have the part of the class not actively taking part vote first for the side that has convinced them it is the best choice and then on how they personally feel.

Activity A is the most simple treatment of the material. The student would simply read the Storyline and react to it verbally or on paper. If discussion is the method chosen by the teacher, the teacher would then be responsible for leading the discussion, but not in the direction of his own OPINIONS. An alternative approach to Activity A would be for the teacher to assign the students to write their feelings on the Storyline and then defend their treatment to the class.

ACTIVITY B:

Activity B is the most simple of the "game-type" or simulation approaches to investigating environmental problems. Seven roles are defined in three stages. Individual students might be assigned to each role, or more than one student could be assigned to each role. The rest of the class could be observers, or more than one simulation could be going on simultaneously. However, this activity requires fairly close teacher supervision and therefore there should probably be only one group active at one time.

There are three stages in the game, with an evolving viewpoint for each role. The players could be given the viewpoints one at a time, with class discussion between the handing out of reach of the other viewpoints, or all three viewpoints could be given to the "actors" at the beginning. It is important in either case that no one, either in the class or among the players, knows any of the viewpoints other than the one he has.

ACTIVITY C:

Activity C is a continuation of Activity B. If, after using Activity B, a more detailed treatment is desired or if the student's ability is high enough to allow much individual initiative, Activity C could be used to expand the activity. More roles could be devised by the students, or the Storyline could be rewritten. Also, additional series of dialogue could be written by the students. Finally, after getting started with Activity C, the students could extemporaneously add to the individual dialogues of the roles.

The seven roles and their viewpoints:

Farmer:
1. The cost of food will go very high.
2. I may go out of business because of low yields with less fertilizer.
3. Perhaps I could compromise and use less fertilizer, but still use some.

Citizens of All-American City:
1. Our water is being poisoned.
2. We don't want poisoned water or high-priced food; science, find a solution.
3. The farmer is making too much money now; we don't want to lose jobs.

Fertilizer Manufacturer:
1. A reduction in fertilizer used will reduce the production of fertilizer and put thousands out of work in our plants.
2. Less use of fertilizer will result in 200 fewer jobs in this area.
3. It may be that even more jobs will be lost than we first estimated if there is a reduction in fertilizer production.

Scientists:
1. The use of fertilizer has been built up over the years on a sound basis of scientific fact.
2. It may be that our former decisions to use so much fertilizer were hasty, it may be possible to get along with less use of fertilizer.
3. We definitely feel that less fertilizer can be used with minimum loss of crop production.

Ecologist:

1. Pure drinking water is more important than cheap food.
2. The use of nitrate fertilizer must be drastically reduced in this area or completely halted.
3. Stop the use of nitrogen fertilizer completely.

Lobbyist (for the fertilizer industry):

1. Senator, if the fertilizer manufacturers are forced to reduce production, many of your constituents will be out of a job (implied they supported the Senator in the last election).
2. A lot of jobs will be lost, Senator, if the fertilizer plant closes; don't forget that it is the government that supported the scientists, financially.
3. Manufacturers, you had better get on the farmer not to reduce the use of fertilizer; Senator, your scientists are changing their minds.

Senator:

1. Let's not be too hasty, citizens, no one wants to poison your water; you ecologists are always seeing the dark side of all situations.
2. Citizens, no one wants to see food costs go up, and I will do all I can to stop it; scientists, don't forget who pays your salary, so you find a solution, and quickly; ecologists, I guarantee that the situation is not as serious as you make it.
3. Farmers, I am really proud of you in agreeing to voluntarily use less fertilizer; and, scientists, you are to be congratulated in searching for alternate ways to bring about high production and low food costs. Citizens, I think it should be clear at this point in time that by cooperating we have solved this problem.

EXPERIENCE #2
ALL-AMERICAN CITY, PART II

OBJECTIVE:

To develop an awareness of the complexities involved in solving environmental problems.

Teacher's Note:

Storyline Two is a continuation of Storyline One and should be presented to the students either in its original form or in an altered form at the discretion of the teacher. The most basic use of Storyline Two would be for the students to read it and discuss its meaning and possible solutions. The teacher should feel free to use the raw information to structure any activity he deems appropriate. If the level of the students warrants it, the teacher may desire to study the problem in Storyline Two by using the activities which follow.

However, the activities associated with Storyline Two are less directive than the activities in Storyline One. The first use of the Economic and Political Models can be made with Storyline Two.

Storyline Two:

The problem of a polluted water supply in All-American City brought about an increased awareness of environmental problems to the citizens of the community. For this reason, an article was written in the local newspaper about the drastic reduction in the amount of fish being caught in Lake Cloudy. It was mentioned in the article that the harvest of the most desirable fish has been reduced by 90% over the last 40 years, and the fishing industry has decreased from a $3,500,000 industry to a worth in the current year of about $350,000. Most of the fish being caught were trash fish, the newspaper article reported, unsuitable for use as food.

After this article appeared in the paper, many letters were written to the editors from sportsmen who complained about the lack of fishing available in Lake Cloudy and from people who could remember the great beaches and swimming from years before.

(The basic problem is what has happened to Lake Cloudy? It is, of course, what has happened to Lake Cloudy that has also happened to commercial and sport fishing and to water recreation. As with many environmental problems, it is the citizens that get the action started. Such was the case with this problem, when an open citizens' meeting was scheduled to air the views of the various people concerned, with the hope that some direction for remedial action could be found.)

ACTIVITY A:

Teacher's Note:

Activity Series Two continues the Storyline used with Activity Series One, and as such it will be covered in much the same fashion. As with all the Storylines, Storyline Two could be used independently of the others.

Activity A is the least complicated of the three activities presented in Experience II. The student should simply read the Storyline and react to it verbally or on paper. If a discussion is the method

chosen by the teacher, the teacher would then be responsible for leading the discussion, but not in the direction of his own opinions. An alternative to Activity A would be for the students to write their feelings of the Storyline and then defend their treatment to the class.

ACTIVITY B:

Activity B is the most simple of the "game-type" or simulation approaches to the investigation of environmental problems. Six roles are defined, with each role having a basic "feeling" about the problem. Students could be given these roles and asked to prepare a defense of the position of that role. A debate could be held to try to resolve the problem, with each student arguing his role. How well he argued the role would depend on how well he prepared for it. Activity B could also be a starting point for a student preparing a paper detailing how he would defend his assigned role.

ACTIVITY C:

Activity C could be a continuation of Activity B or it could be mostly independent. Activity C is designed to allow the student latitude in designing his own "game". Additional roles might be developed from Storyline Two, or the role descriptions might be expanded into a character profile.

Viewpoints:

Ecologists:

1. The problem is the large amount of sewage being piped into the lake. (How do large amounts of sewage affect a lake?)

Sewage Disposal People:

1. The problem is not sewage; sewage acts as a fertilizer and helps the growth of plants and thus the growth of fish.
2. The problem is with the large number of industrial plants dumping chemicals into the lake and killing the fish.

Industrial Plants:

1. Yes, we do dump a "small" amount of materials into the lake, but, because of our plants, this area has the lowest level of unemployment in the state. What is more important, jobs or a little dirty water?

Fishing Industry:

1. We don't know exactly what is causing the low catches of fish, but the appearance of the water has changed as All-American City has grown. We are fishermen by trade and our unemployment rate is over 20%, the highest in the state.

Government:

1. We recognize that there is a water problem in Lake Cloudy, but we test it constantly and the water quality meets all state guidelines. (Guidelines may be too low; there may be unequal enforcement of the law.)

Recreation Enthusiasts:

1. There has been no good sport fishing for over 15 years, and the beaches have not been fit for swimming in the lifetime of our children.

EXPERIENCE #3
BIG-CITY, PART I

OBJECTIVE:

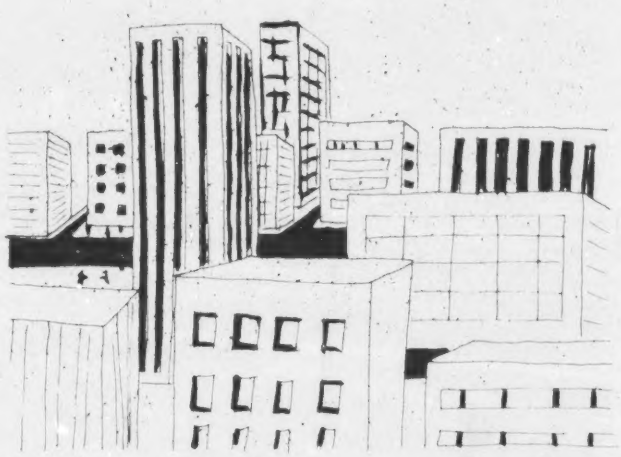
To develop an awareness of the complexities involved in solving environmental problems.

Teacher's Note:

Storyline Three continues the story of the environmental problems of the All-American City region by moving to the nearest large city in the area. Present Storyline Three in its original form or change it to suit the situation. The most basic use of this problem would be to have the students read the storyline and react to it. The teacher should feel free, however, to use the storyline and activity in any way he desires.

Storyline Three:

Big City, 120 miles to the west of All-American City, has been plagued by air pollution for decades. In the 1940's, it had been dust, up to 400 tons per day falling from industrial smokestacks and incinerators, that had dirtied the air. By the late 1940's, the dust problem had been reduced to about 100 tons per day falling on the city. However, during this time, another problem had been noticed by the citizens of Big City. There was a whitish haze, sometimes tinged with yellow-brown, that brought with it eye-smarting and tears. This new condition worsened in the early 1950's throughout the mountain-ringed basin that made up Gotham County. The Gothamites called the new pollutant "smog," after a term invented in England to describe the thick clouds which in five days in 1952 had killed 4,000 Londoners.



In London, sulfur dioxide was the cause of the disaster, and it seemed likely to be the same thing in Big City. Controls were put on the use of high sulfur fuels and by the late 1950's the amount of sulfur dioxide in the atmosphere was down to the pre-1940 level. In spite of these precautions, the smog worsened.

In the early 1960's, scientists discovered that sunlight has a peculiar effect on organic compounds, especially those from plants, and the new source of air pollution was found to be the action of sunlight on otherwise invisible pollutants in the air. In effect, sunlight acts on nitrogen oxides from high temperature power plants and gasoline engines to produce a "petrochemical smog." The resultant control methods were to reduce the emissions of hydrocarbons from the petroleum industry.

However, Gotham County smog conditions worsened. A new survey showed that, while the petroleum industry was emitting about 300 tons of hydrocarbons per day, about 800 tons per day were being emitted by automobiles, trucks, and buses. By 1961, 75% of the total emissions of hydrocarbons were from motor vehicles. It was estimated that 100 tons per year of additional hydrocarbons would be emitted over the decade of the 1960's.

The following action options have been suggested by members of the community:

Action-Options:

1. Do nothing — gradual increasing of smog condition, making living conditions in the area very hazardous to health, and eventually rendering the area uninhabitable.
2. Halt the use of motor vehicles — the environment would be a very desirable place to live, but it would be impossible to supply a city of 1,500,000 people without motor vehicles.
3. Restrict the use of motor vehicles — this action would certainly improve the quality of air in the valley, but continued economic growth and standard of living would be impossible. The people might not accept such a solution, even if the best balance of allowable pollution and economic standards were achieved.
4. Force emission controls on the motor vehicles — present technology would force a two-year delay on getting started, during which time the amount of hydrocarbons would increase by 100 tons a year. Further, it would not be known until after the commitment was made whether such emission controls for motor vehicles would actually work for many years, if ever.

(The problem is, what can be done about the increasing air pollution of Big City?)

ACTIVITY A:

The most simple use of Storyline Three would be for the students to read the Storyline and react verbally, either in a class discussion or as a written report.

ACTIVITY B:

The four "action-options" in the simplest form would be used in Activity B. The class would discuss the four options in a sort of open forum, with the teacher as moderator. A somewhat more involved activity would be to have the students write a defense of one of the options.

ACTIVITY C:

The most complex use of Storyline Three would be to have students debate the various options. This debate could be done individually or in teams. Finally, it may be useful for advanced students to add to each of the four options or to write new options and then debate them. The Economic Model would be valuable for more advanced students to use in preparing an argument to defend or attack an option. The Political Model could be used to structure the whole plan of study.

EXPERIENCE #4
BIG CITY, PART II

OBJECTIVE:

To develop an awareness of the complexities involved in solving environmental problems.

Teacher's Note:
Storyline Four is meant to be used by the most advanced students, *probably after they had done some of the previous activities. Storyline Four leads directly into the completely "freeform" structuring of Storyline Five.*

Storyline Four:

In the case of the extreme smog conditions of Big City, Gotham County, the people of that region forced their government to take action in the area of pollution controls for motor vehicles. With such a mandate from the people, the highest government official wrote a letter to the major auto makers in which he asked whether the companies had conducted, or were conducting, any research on controlling motor vehicle emissions. The first answer indicated that, although the auto engineers knew that their vehicles emitted exhaust vapors, the engineers felt these vapors were quickly dissipated into the atmosphere and represented no pollution problem.

This government official sent more letters and finally got word that some research on exhaust control was underway. This word came two years after the first inquiry by the government official. In that time, 200 tons of additional hydrocarbon pollutants had gone into the atmosphere. At this point, the local government began searching for more leverage to use to speed up the emission control program. Several forces had now come into play in the fight for cleaner air.

1. Local government agencies and officials who had received "instructions" from their voters that they wanted a halt to the air pollution.
2. Government agencies outside the area whose constituents also voiced a strong desire to arrest air pollution (smog).
3. The auto industry who saw a threat to their economic well-being developing from the desire for cleaner air.
4. Environmentalists who called for an immediate end to all polluting from motor vehicles.

Methods of Operation:

1. Local government agencies and officials must work with laws and statutes. They might work with existing laws or write new ones for this situation.
2. Governmental agencies outside of Gotham County could only watch and learn from what is taking place there. They might, however, supply information such as advice about their own experiences, if requested to do so.
3. The auto industry, which sees a threat to its economic well-being, has more options than the government agencies, at least at first. The industry can bring its vast resources to bear on providing data and information refuting the government claims. If this doesn't work, they can lobby to have environmental laws written and passed that are most beneficial to them. Finally, if all else fails, the auto industry can "drag its feet" by claiming that the necessary technology for satisfactory emission control has not been developed and will not be developed in the near future. In addition, there is the possibility that they are not dragging their feet and that in fact such technology is far in the future.
4. Environmentalists operate in much the same way as the auto industry. They will first combat the industry about the "facts" of the pollution problem. If a law or laws are being written, the environmentalists will lobby to get into the laws the things they deem necessary. If the laws passed are not sound environmentally, as these people define sound, they will press for more stringent regulations.

(The problem in Storyline Four is to try to structure each of the four viewpoints into a meaningful and realistic entity and then to search for a viable solution to the air pollution problem in Gotham County.)

ACTIVITY A:

The four forces are presented, along with each group's method of operation, and the class discusses the ramifications of each. An alternate use is for each pupil to write an opinion on one of the forces.

ACTIVITY B:

Small groups of students or individual students could assume the roles implied in the Storyline and debate the various aspects of each role. If individual students assumed the roles, the remainder of the class might act as "voting public."

ACTIVITY C:

While undertaking Activity B, the students might try to write a model pollution law, with the added roles of auto industry and environmentalist lobbyists trying to influence the law to their own benefit. In a team situation, a social studies and science class are combined, making the "voting public" much larger. With the use of the social studies class, an election of the government official, with environmental problems as campaign issues, could be carried out.

EXPERIENCE #5
STATIONARY OIL COMPANY

OBJECTIVE:

To develop an awareness of the complexities included in solving environmental problems.

Teacher's Note:
If the students have made it this far, they should be able to structure a problem, either one given to them or a local problem of their own choosing. Storyline Five's use is only suggested; a local problem could be substituted for it. All of the forces that have been practiced to this point, plus the use of the political and economic models, should be brought into play.

Storyline Five:

Up the coast from Big City and 10 miles offshore has been discovered a very large pool of oil. This oil lies at a depth of only 100 feet, there is an undersea dome here, and the oil would be quite easy to remove. Stationary Oil Company (SOC) has drilling options to the oil reserve and has quietly started drilling. However, an enterprising young reporter for the Big City *Blab* has dug up a story that the SOC plans to lay an underwater pipeline along the ten miles to shore and then build a surface pipeline along the coast to Big City and its refineries. The reporter points out that the shortest distance to shore, the route that the SOC plans to run its underwater pipeline, is through very rough and unpredictable waters. He further points out that the proposed overland route lies along some of the most beautiful beaches in the world.

The local chapter of the Wildflower Club immediately starts a campaign to halt drilling and proceeds to get a court injunction banning further drilling and halting any possible work on the pipelines.

(Does the oil stay in the ground or does the oil company get it out of the ground?)

ACTIVITY A:

The class, if it has reached this point, should have the skills to "write" its own activity. That is, the students should be able to structure roles and viewpoints from the storyline or be able to structure roles and viewpoints from the storyline or be able to do it using a local problem. To make it more realistic and/or practical, the political and economic model should be used.

APPENDIX A: ENVIRONMENTAL ECONOMICS MODEL

Introduction:
What follows was taken largely from J. H. Dale's *Pollution, Property, and Prices.* (Toronto: University of Toronto Press, 1968.) It is in two parts, the second building from the first, and also is the more difficult of the two.

The purpose of the model is to present a method, however crude, of putting a cost on pollution and non-pollution.

Part I: Some formulas and definitions:

1. Waste disposal costs = Pollution prevents costs + Pollution costs.
   a. Waste disposal costs = total cost for a society (people) in getting rid of its wastes. It is the sum of the costs that are paid to prevent waste from causing damages plus the value of the costs brought about by *not* preventing wastes from causing damage. This latter cost must be paid, but it can be made as small as possible.
   b. pollution prevention costs = the amount of money spent to prevent some of the damaging or undesirable effects of wastes, such as sewage treatment and garbage disposal, smoke abatement, and auto emission controls. Pollution prevention costs are made to control waste products *before* they are released into the environment, and therefore *prevent* pollution.
   c. pollution costs = the money value of the damages caused by wastes *after* they are released into the environment. Pollution costs have three categories: (1) public expenditures to prevent pollution damage (not to prevent pollution); an example is the treatment of drinking water, (2) expenditures made by private parties, such as added cleaning costs because of pollution, additional medical bills, higher costs for products because of pollution controls used by the manufacturer, (3) the money equivalent of the reduction in welfare resulting from pollution damage that is not prevented. (Not only is the pollution not prevented, as in sewage treatment plants, the damaging effect of pollution is not prevented as in water treatment plants). Additional money may be spent to move away from a polluted region or to drive from the country to the city to work, etc.

We can summarize the technical vocabulary in two verbal equations: (1) waste disposal costs = pollution prevention costs + pollution costs (2) pollution costs = public expenditures to avoid pollution damage + private expenditures to avoid pollution damage + the welfare damage of pollution (i.e., the money equivalent of pollution damage that is suffered rather than prevented.)

Of importance is the concept that the overall problem is to minimize waste disposal costs, given the amount of waste generated by any society. Equally interesting and vital to the development of an economic awareness of pollution is that, given our modern society, there will certainly continue to be the necessity for waste disposal. Ideally, all waste disposal costs would be borne by pollution prevention costs, such as sewage treatment plants. However, with the great amount of waste produced, some of the waste disposal costs will have to come after the fact of pollution, in the form of pollution costs (see equation 1), i.e., drinking water treatment plants. Assuming that there will continue to be pollution costs (see equation 2), one can meet these costs in two ways: public and private expenditures to avoid pollution damage and the acceptance of some pollution damage. The more pollution damage that can be accepted and borne, the less will be the expense for private and public agencies to avoid pollution damage. In terms of the equation, we can illustrate pollution costs as an arbitrary number, say 100. The other three components of the equation, private expenditures, public expenditures, and welfare damage costs, must equal 100. If all of the pollution cost is accepted, that is, if damage due to pollution is acceptable to the society, the equation will read 100 (pollution costs) = 0 (public expenditures) + 0 (private expenditures) + 100 (welfare damage). In this scheme, nothing is paid for pollution defense to avoid pollution. One the other hand, it would be possible for all of pollution costs to be paid for by private or public expenditures and for no pollution damage allowed to exist. Such a formula might look like this: 100 (pollution costs) = 50 (public expenditures) + 50 (private expenditures) + 0 (welfare damage).

A Problem

By setting up artificial problems and solving them, it is possible to examine the complexities of the assumptions that must be made to set up and solve such problems. The gain from the use of artificial situations is not so much in solving problems as in identifying the assumptions that allow us to solve them and to thus see what features of the original problem make it complex and difficult.

Imagine a city of exactly 100,000 voters situated on the shore of a small lake. The only pollutant that enters the lake is human waste from the city. This pollution has been gradually increasing, since the amount of waste coming into the lake has been greater than the ability of the lake to take care of it. Only recently has this been recognized, and the lake has just been found dangerous for providing drinking water.

Assumptions that will allow us to examine and solve the problem:

1. There is only one pollutant.
2. There is only one group of polluters, and each pollutes equally.
3. Each city member takes exactly the same view of the warning as every other.
4. Each member would be willing to pay to $10 a year, but no more, to avoid the pollution risk to the drinking water.

BENEFIT-COST TABLE I

Policy	Water Treatment Plant	Boil Water	Water & Sewage Plants	Do Nothing
1. GROSS BENEFIT (value of damage avoided)	$10.00	$10.00	$0.00	$0.00
2. COST OF AVOIDING DAMAGE	$2.50	$6.00	$5.50	$0.00
3. NET BENEFIT (item 1-2)	$7.50	$4.00	$5.50	$0.00
4. WELFARE DAMAGE REMAINING	(swimming) $1.00	(swimming) $1.00	$0.00	(health & swimming) $11.00
5. WASTE DISPOSAL COSTS (item 2 + 4)	$3.50	$7.00	$5.50	$11.00

5. The risk can be avoided in only two ways:
   a. each family can boil its water at a cost per voter of $6 per year of $600,000 for the city;
   b. a city water treatment plant can be built at a cost of $250,000 per year or $2.50 per voter.
6. It is expected that within the next 10 years swimming will be banned; each voter would be willing to pay $1.00 per year from now on to avoid that. They discover, however, that the cheapest way of avoiding it would be to pay for sewage treatment at $3 per year.
7. No one expects further damage, except to swimming, from continued pollution of the lake.

The answer of what to do about the drinking water problem is to build a water treatment plant. This solution can be seen better, perhaps, in a benefit cost table, as above.

These figures from the table can be plugged into the formula we previously discussed. For example, if we consider building a water treatment plant, we have waste disposal costs ($3.50) equal to pollution prevention costs ($2.50) plus pollution costs ($1.00). The swimming problem could be solved by building a sewage plant in addition to the water treatment plant. However, this would raise the waste disposal costs from $3.50 to $5.50 and would mean paying $2.00 to eliminate a damage valued at $1.00 (swimming). Of course, any numbers could be used, and it might help pay the student to try different numbers as part of the assumptions. Other solutions, then, would be possible, but still the "correct" solution would be cut and dried.

The reason the problem's solution is so easy is because of the uniformity of the population. There is complete agreement on every issue. Naturally such agreement is not true in actual situations, but an ideal situation is valuable for examining the forces at work economically in pollution problems.

Part II: A Complex Problem

One part of Problem 1 is that outcomes were "all-or-nothing" propositions, it was either solved or not solved. Usually the solution of pollution problems is not to simple. Usually there are different "degrees of

BENEFIT-COST TABLE 2
(Two Measures with Varying Degrees of Treatment)

Degree of Treatment	100%	75%	50%	0%
1. GROSS BENEFIT (value of sickness avoided)	$10.00	$9.00	$7.00	$0.00
2. COST OF AVOIDING DAMAGE				
boiling	$6.00	$4.50	$3.00	$0.00
city plant	$5.00	$3.50	$2.00	$0.00
3. NEW BENEFIT (item 1-2)				
boiling	$4.00	$4.50	$4.00	$0.00
city plant	$5.00	$5.50	$5.00	$0.00
4. WELFARE DAMAGE REMAINING ($10 - item 1)*				
boiling	$0.00	$1.00	$3.00	$10.00
city plant	$0.00	$1.00	$3.00	$10.00
5. WASTE DISPOSAL COSTS (3-5)				
boiling	$6.00	$5.50	$6.00	$10.00
city plant	$5.00	$4.50	$5.00	$10.00

*value of sickness not avoided

solution." No one expects the local beach to have completely pure water, the question, therefore, is how dirty or impure will it be suitable to allow the water to become.

To look at this more realistic problem, we need to change or add to the seven assumptions listed with Problem 1. The city engineer now tells the voters that a treatment plant can be built that will remove either all of the undesirable wastes from drinking water for a cost of $5 per voter per year, 75% of the wastes for $3.50 or half of the waste for $2.00. The engineer then calculates that, if nothing is done to the water, he would expect to be sick one day a year. A 100% effective treatment plant would avoid that one day of sickness and the engineer decided that we would pay $10 to avoid that one day. Likewise he calculates that a 75% effective plant would be worth $9 and a 50% plant $7. The city engineer then put all of this data in a table, Table 2.

What we are searching for is the scheme with the *highest* net benefit. The scheme with the highest net benefit is the 75% effective city treatment plant. This example is good because it illustrates a situation in which total reduction of pollution is less effective economically than partial reduction. We assume in the problem that all our our "facts" are correct, when in reality, of course, most of them would be impossible to determine with any accuracy.

In using this model, it is possible for the teacher himself to provide different values or to allow the student to arrive at values to be put into the table and calculate the benefit.

The benefit-cost approach allows us to look at the economic aspects of polluting in an orderly manner. The examples given here have been simple, but the model works with any degree of complexity, provided some numerical values can be given to the various categories. Further, this approach reinforces the facts that every benefit has its cost, and this cost must be considered when attempting to understand and solve environmental problems.

APPENDIX B: ENVIRONMENTAL POLITICAL MODEL

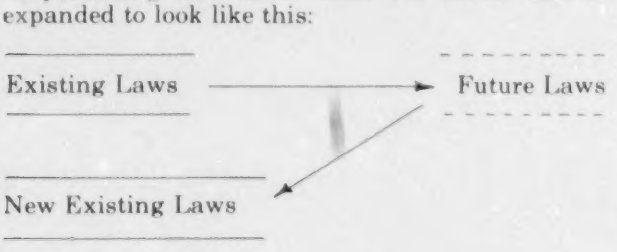
Does the United States Constitution guarantee you a right to environmental quality? Federal and state agencies are supposed to protect your air and water, and local governments traditionally have regulated the use of land, but what if they fail to carry out their mandate, as is so often the case? Or what if a conflicting interest prevails, as with pesticides? In a society that stresses innovation and "progress," how can technological growth be channeled to prevent adverse effects on the environment? What is the difference in cost (money) between a scenic river and a thick seam of coal?

No attempt will be made to answer directly the questions proposed above. That is not the intent of this section. The attempt will be made, instead, to present a political model that will serve two purposes. First, it will serve to illustrate how environmental protection laws originate and are used. Second, it will serve as a vehicle to understand better the extremely complex problems that arise when opposing forces meet on the political battleground.

A consideration of politics in a study of environmental problems or environmental quality is deemed essential. Even though ecological considerations are, or should be, of utmost importance when appraising the environment, economics determine the direction of much of the ecological consideration, and politics determine much of the economic direction. Environmentalists are learning that mere logic (as they see it) is no match for law and litigation. Therefore, any person desiring to make any impact on improving environmental quality must have a clear idea of how the law and politics operate.

The first problem in devising a political model is in finding the starting point. Basically, there are two types of environmental protection laws, existing laws and non-existing laws. Since we always live at the present, such a start for a political model is logical. No matter when the model is used, there will always be existing laws and at least the potential for future laws.

As far as the existing laws are concerned, there is nothing we can do about the law itself except change it, producing new laws. Thus our model can be expanded to look like this:



At this point, we need to pause and add some detail to our budding model — how these laws come into being. In doing this, we are not going to examine how bills or proposals pass through the legislative process and become laws. Rather, we are going to concentrate on how environmental proposals become law, concentrating on the people and agencies that influence its structure.

For an environmental law to come into existence, some need must exist for the law. The need may be identified by many quarters. Usually we think that legislatures deeply committed to environmental quality propose most environmental laws, and they do propose many such laws. Usually we think that environmental legislature is proposed and written with the close guidance of some environmental organization and proposed to a legislative body by a strongly pro-environment senator or representative. Many do originate in this manner. However, many other laws may originate with a business interest or concern. There are many probusiness legislatures.

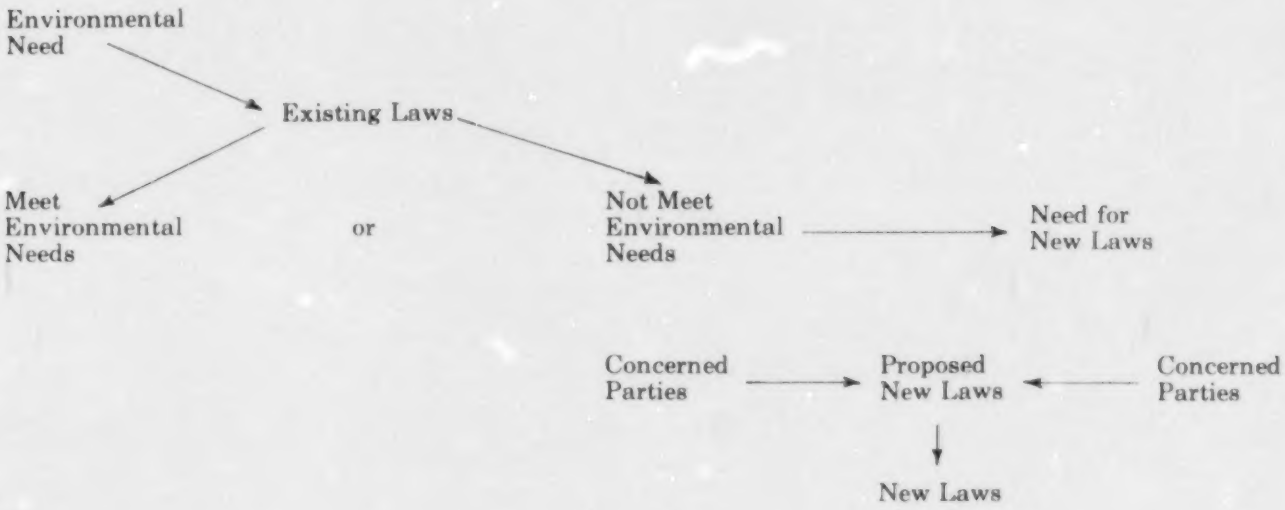
The question arises of how the polluter (business interests) could possibly be allowed to influence environmental protection laws? It should be apparent by now that there are many sides to every question. There are undoubtedly some people in the business community who would unfairly influence legislatures in their favor. But just as undoubtedly there are people in the business community who feel strongly that the environmentalist who wants to keep all of the wilderness is far off base and apt to cause more harm to the country than the worst polluter. In short, everybody is fighting for his own interests and most genuinely feel that their proposals are the correct ones. However, it is true, most laws to protect the environment originate with environmentally-minded law makers.

Once we accept the necessity for having a problem as a starting point, it is necessary to consider the possible "sides" of the problem. These "sides" are as many as there are concerned parties. The concerned parties are determined, of course, by the nature of the problem. They vary to a greater or lesser degree along a continuum.

An environmental need is seen, say to preserve a unique forest from lumberers. Existing laws are examined, and, being on private land, the forest has no protection. The existing laws do not meet this particular need. There is a need for new laws, and they are proposed by environmentalists as one concerned party. The owners of the forest, a lumber company, fight the proposed law as another concerned party. There could be other concerned parties which would further complicate the writing and passing of a new law.

There is room for more detail at the point in the model where the interested parties are working on a new environmental law. However, these details are presented in the storyline sections of this unit and will not be further covered here.

Now our model might be rearranged like this:



REFERENCES:

TEACHER DATA BOOKS

Teacher's Note:
The following publications would constitute a nucleus of a data source collection for your school library. Secondary students should be able to use these sources with little difficulty. Junior high school teachers may find it necessary to simplify and summarize the relevant data for their students.

Congressional Quarterly Service. *Congressional Quarterly Guide to Current American Government* (Yearly Spring and Fall editions) Congressional Quarterly, Inc., Washington, D.C., 1974.

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TEACHER'S NOTES:

COMMUNITY PROBLEMS

The problems of our communities are growing increasingly complex with each addition to the population. Each new American means greater demands upon our limited natural resources. The increased demands for transportation alone cause stresses to be placed upon open space, air, water, and food. To effectively deal with these problems, we, as teachers, must produce citizens with a high degree of interest in their community who are knowledgeable about its problems and motivated and skilled enough to solve them.

Certainly, if we are to deal with the entire community, we must not neglect the socio-cultural aspects which have contributed to the existing problems but which can also help to provide solutions for the future.

In this unit we are considering the socio-cultural environment as the whole community population. This brings into play any problem directly affecting any segment of the community.

Due to the heavy importance of values, both personal and social, to socio-cultural decisions, you will find that the initial events in the unit deal with values and with subjective judgments of environmental quality.

While the timing of events makes the unit seem very structured, in reality it is very open. The schedule merely offers a tentative time-line with which to gauge the importance of the individual segments to the success of the unit as a whole.

The purpose of this unit is to provide students with the opportunity to become familiar with the socio-cultural character of their environment through management activities which focus on legal problems or situations.

The activities are designed around the student as an active investigator and problem-solver. The research, planning, and action are done by the student. As a teacher, you can be more effective making certain the administration is well aware of the planning behind your activities. You should be certain the principal knows *beforehand* about your students working in the community and about the nature of their projects. Nothing will kill student enthusiasm faster than an unexplained order from the administration to stop a project. *You* must be their buffer to prevent this. Students must also develop an understanding of the scope of problems. There are some problems beyond their level of expertise which would only result in undue frustration. Students should be aware of the socio-cultural approach being taken in units and have a simple definition of the term socio-cultural.

The method involved will be a five-step process, concluding in an action plan that should be implemented.

I. Identify the problem.
   A. Using the *E.Q. Index*, (See Appendix A), the students will identify the good and bad aspects of their community.
   B. The class decides upon the problems to be studied.

II. Become informed.
   A. The students will divide into teams of 5-7 students and study their particular problem.
   B. Using surveys, government documents, references, and resource people, the student will study every aspect of the problem.

III. Analyze the data.
   A. Using statistics, psychology, science, and resource people, the students will analyze their data.
   B. After analyzing the data, the student teams will identify all potential solutions to the problem.

IV. Develop a plan of action.
   A. From the list of potential solutions developed in III, the students will select two of the most plausible alternatives.
   B. Using these two alternatives, the students will develop an action plan to solve their problem.

V. Implement the plan.
   A. The students will present their plans to the administration and their classmates.
   B. Upon obtaining approval, the students will implement the chosen plan(s).
   C. The students will evaluate the outcome of their project for its worth to them as individuals and to their community.

INSTRUCTIONAL OBJECTIVES:

At the conclusion of the unit, the student will:

1. Develop an awareness and understanding of his own values and those of others.
2. Be able to conduct a survey of his community and prepare an environmental quality index.
3. Become familiar with problem-solving techniques as applied to an investigation of a community problem.
4. Be able to identify and develop a plan to implement or to educate the community about a solution to a community problem.

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EXPERIENCE #1
VALUE CLARIFICATION

OBJECTIVE:

To assist the student in developing an awareness and understanding of his own values and those of others.

Teacher's Note:
The student's desire to engage in problem-solving will depend upon how he sees his role in the community. To determine the students' attitudes, try one of the following value clarification strategies.

ACTIVITY A:
MAKING CHOICES

You should give students a series of direct statements to vote on by show of hands.

Make up your own questions to better find out how your students feel. Remember, make *no judgments* on their decisions. Permit anyone to abstain if they choose. Vote only after they have voted. You can stop at any point and ask them why they voted as they did or if anyone wants to explain his vote.

ACTIVITY B:
WHERE DO YOU STAND?

You can use the same type of questions, but make the voting a physical activity. Place two posters on opposite walls, one saying FOR, one saying AGAINST. Have all the students gather in the center between the two signs and ask them to vote on a question by placing themselves on a spot somewhere between the two posters.

EXPERIENCE #2
ENVIRONMENTAL QUALITY ASSESSMENT

OBJECTIVE:

To enable the student to survey his community and prepare an environmental quality index.

Teacher's Note:
The picture-taking activity should be started in time to get prints back to use with the unit.

ACTIVITY A:

Prior to beginning the unit, you or the students should take 40-50 slides of various places throughout the city. Be sure to get a very diverse group of areas. Sample the entire cross-section of the community from the dump to the churches. On the second day, ask the students to evaluate the slides on a continuum from Excellent to Very Bad and to list the main point in each slide.

Example:

Excellent	Good	Average	Bad	Very Bad
1	2	3	4	5

Spend no more than five seconds per slide and allow at least thirty minutes to discuss why they ranked certain slides as they did. You may pre-select these discussion slides. From this you should be able to determine how they see their city and what they consider good and bad.

Collect their rankings for use the following day. Don't let them write their names on the sheets.

Alternatives:
Alternatives for Part 1 of Activity A are listed below. They may be substituted for the slide presentation.

Bus Trip
Take your students on a bus trip around the city. Don't charter a bus; take one of the regular city buses. If you can't find enough time to do it with the class, give them lists of things to look for. Make them take the bus. A car won't achieve the same effect.

Car Trip
Identify major sections of the community, i.e., residential, commercial, industrial, historical, etc. Make maps with prescribed routes so students have a common experience.

Walking Trip
Take your students on a walking trip of the school area. Look for signs of personal touches on property. Are there signs of any particular ethnic group or organization?

Student Perceptions
Ask the students to spend one hour walking through any section of the town they choose. Tell them to record everything they consider either good or bad for the neighborhood. When they finish, they should look at the lists and put the items together which have any common factor. Upon completion of this section, which should preferably be done in class, they should be able to determine which factors make good and bad visual effects.

Ask one student to be the recorder for this session. You will have several lists at the end of the session. Start with the nation and ask them to name the *most serious social* problem in it. Next ask them to name the *most serious social* problem in:

the state
the county
the city
the neighborhood
the school

In each case you should briefly define the area in question and accept all meaningful problems they suggest. The list should get longer and longer as they get to the neighborhood and the school. In each case, give them approximately the same amount of time.

When completed, you may find it convenient to draw the following diagram on the board:

Omit the designations for time and distance initially. Give them an assignment of explaining what the graph represents. The next day explain the graph.

The graph can be explained to them as being representative of the concern people have for problems. The further away in time and distance, the less concern we show for solving a problem.

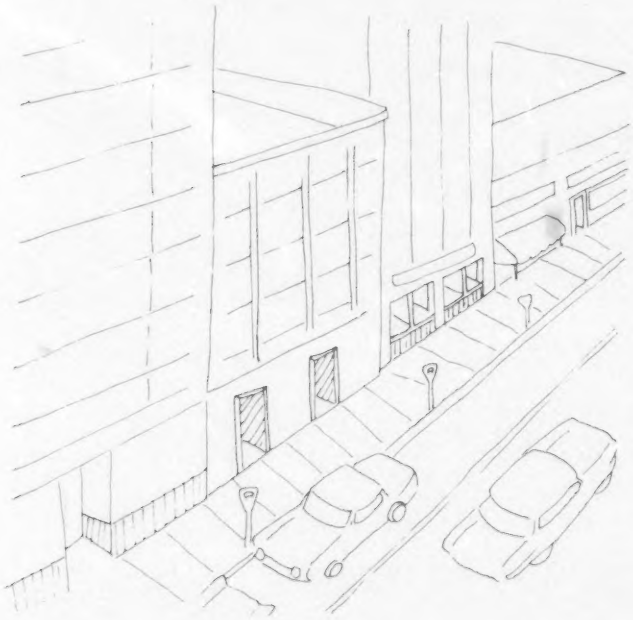
ACTIVITY B:

It is important that you recap the events of this experience and explain to them that these past few activities were laying the groundwork for the following weeks. This is also a good time to briefly outline what they will be doing for the coming weeks:

1. Identification and clarification of community problems.
2. Selection of problem areas to be investigated by the class and identification of resource people.
3. Data collection.
4. Analysis of data and plan development.
5. Preparation of presentation and analysis of the problem-solving process.
6. Emphasize at this point that they are going to be on their own for most of the work but you will follow their progress and ensure that they meet deadlines.

ACTIVITY C:

1. Explain to the students the non-numerical nature of socio-cultural values. These are very subjective. What you are about to have the students do should be considered as subjective and non-scientific. Explain the drawbacks of relying only on scientific or engineering knowledge in treating and assessing problems.



   a. Urban renewal
   b. Highway construction
   c. Automotive emission control
   d. A St. Louis housing project
   e. The Aswan Dam

2. The project is finding the Environmental Quality (E.Q.) index (see Appendix, Part A). You must prepare for the index by taking 20-40 slides of local scenes which reflect the socio-cultural nature of the community. Some possible slides are these:
   1. industries (light and heavy, clean and dirty)
   2. shops (grocery, malls, trades, small centers)
   3. churches (old and new)
   4. homes (condominiums, shacks, single family)
   5. schools (old, new, public, parochial)
   6. traffic (passenger cars, buses, cabs, trains)
   7. streets (expressways, sidestreets, and main streets)
   8. parking (lots, structures, street, crowded)
   9. advertising (billboards, flashing lights, neon signs, etc.)
   10. traffic devices (stop signs, yield signs, turn lanes, the police)

   The students will be given a mimeographed handout listing what the 20-40 slides portray. You must be certain to have both good and bad subjects on the slides. Ask the students to rank the slides from plus-five to minute-five:

   Plus-5 very great positive effect on E.Q.

   Plus-3 great positive effect on E.Q.

   Plus-1 slight positive effect on E.Q.

   0 unsure or no real effect

   Minus-1 slight negative effect on E.Q.

   Minus-3 great negative effect on E.Q.

   Minus-5 very great negative effect on E.Q.

   Give them no more than five seconds to write down their values. After the students have graded these, ask them which ones they have questions about and also ask them to record their views on each of those items in question. This will clarify their views for use later.

3. Following Part 2, spend your time treating the data of day one and reaching consensus on the values to be assigned to each indicator. If there is a great deal of disagreement between the various classes, you might have to vote or take an average.

   At this point it might be advantageous to discuss data treatment and interpretation. As the students will be looking at data later, you can them how to work out the mean, average, probability, random sample, etc. for statistical treatment.

ACTIVITY D:

Compile the values from Activity B and prepare a list for use by the students. Using a large city map or an overhead transparency of a city map, identify which students will cover which areas of the city.

Each student will cover his area on foot or in a slow-moving car, looking for the indicators on the list. He will then record the indicators each time they appear, and after he has covered his area, he will tabulate the + and - values for the route and figure an average plus or minus value for the entire route. From this, each student will then have data which can be placed on the master map.

With four classes you can make an accurate assessment of the entire city. If you have a single class, take a random sample of the city.

When all the data is on the master map (+ in red, - in green), you can search for problem areas in the city using the map. Have each class select an area of interest and take a close look at the data to see what caused the negative index value.

List on a board the principal problems uncovered by the group. With this list in mind, ask the students to identify those areas in which they are interested. When they have identified their area of interest, ask them to further identify a problem area within that area. In this manner, the students will be involved in a stepwise process leading to their own personal involvement in a community socio-cultural environmental problem.

The Process

1. What do I feel is of value?
2. What is my place in the community?
3. What is my community's place in respect to the city, state, or country?
4. Of what is my community composed?
5. What is the quality of my community?
6. What problems exist in my community?
7. What problem(s) is of immediate concern to me?
   a. E.Q. survey
   b. Identification of problem areas
   c. Identification of specific problems
   d. Selection of a problem of concern to me

EXPERIENCE #3
PROBLEM-SOLVING PROCESS

OBJECTIVE:

The student will become familiar with problem solving processes and principles and apply them to the investigation of a community problem.

ACTIVITY A:

Each team of students (3-5 students) will now have identified a particular problem of interest to them. At this point it is crucial that you give them sufficient background in problem-solving to enable them to operate semi-independently of your control. One means of achieving this end is the U.S. Forest Service Six-bits method, impress upon the students the need for:

Teamwork — Each individual has a contribution to make to the problem solution and without everyone's contribution the solution is impossible.

Organization — If the data isn't organized, the solution may be missed, or if there is poor communication of information, it may take too long.

Trust — Everyone must be able to trust the work of the team unit. Without trust, we have wasteful duplication of effort and chaos.

These three ideas are very carefully presented in the Six-bits Game. Very carefully follow the directions and observe the behavior of the students. They should be held to strict observance of all the rules. Your task is to maintain some degree of order and to record carefully your observations of the groups.

An additional exercise to use in promoting teamwork is the Common Squares Game. This can also be used to further students' understanding of the team approach (see Appendix C).

You should plan on spending whatever time is necessary in order for the students to have a complete understanding of teamwork and its importance. Time spent now will avoid later difficulties.

ACTIVITY B:

Now is the time for all the students to become thoroughly involved in the study of their problem. Using the charts in Appendix D (Problem Identification), have each student team make a careful analysis of its particular problem. At this point you will need to explain the problem-solving method. (Because of the long-term nature of the exercise, it may be useful to print this on a large piece of poster board where it can remain in view.) In problem-solving we must

1. *Identify the problem* — identify not just the symptom but the actual problem and all of its implications.
2. *Become informed* — much of the session will involve data collection. Problems dealing with people are seldom simplistic. We must be aware of all of the interacting variables if we are to suggest a meaningful solution.
3. *Identify alternative solutions* — the complexity of these problems forces us to deal with many diverse solutions which may or may not meet the needs of the community.
4. *Select the best alternative* — from all the possible alternatives there should be one *best* alternative solution. Among the aspects to consider are scope, cost, effectiveness, impact, and time involved.
5. *Develop a plan* — if the students are to develop a thorough understanding of the difficulties involved in solving environmental problems, they should also have to deal with the work and go

beyond complaining. They should also be able to carefully plan for the solution of a specific problem.

6. *Implement the plan* — obviously, if each class is working on 4 to 5 separate problems, you will not act on each plan. The class(es) should spend three or four days evaluating the potential of the plans and selecting the one or two plans which best meet their needs.

The students should keep these six steps in mind throughout the entire process.

During this period, it would be very useful to bring in problem-solvers from the community. This would be most effective if you took them from different stages of government and industry:

Mayor — *placates* and *motivates* rather than solves.

Councilperson — *legislates* and plays politics to survive.

City engineer — is a *long-term planner* involved in large scale problems.

Health inspector — deals with small *isolated* instances concerning *individuals*.

Corporation president — governs and directs toward a *goal* of economic gain

Doctor — treats root causes and not symptoms. (Why?)

Principal — deals with four levels of individuals in daily problems of wide scope (teachers, students, parents, administrators).

By bringing in these people you will be able to show how many different forms of problem-solving methods exist and why they are used. If five or six classes are involved in this program, you may want to ask the speakers to meet with two classes and compare their impressions of the speaker's method of problem-solving. The form in Appendix D will give you a format to simplify this task.

When selecting people to bring in to speak with the students, keep in mind you could also send the students to the people. A group of 4-5 students could select an individual and make an appointment to meet with him in his office to discuss problem-solving. This would give them access to people, get them working outside of school, and provide an opportunity to deal with problem-solvers on their grounds.

EXPERIENCE #4
RESEARCH AND PLANNING

OBJECTIVE:

The students will identify and develop a plan to implement or educate the community about a solution to a community problem.

ACTIVITY A:

The strength of this section will depend upon how carefully you have prepared the students prior to this time. They must feel that they are working on their own problem, that you trust their judgment, that you will give them assistance when they get stumped, that they are supported by the administration, that they are making a significant contribution to their community, and that they will be rewarded for their efforts.

This is the most tedious section of the unit. It requires you to ensure that the students have access to the library and to other reference works which will help them.

In some cases you may want to make your class a study hall so they can have time after school to spend on their project without neglecting other classes. They may get wrapped up in their project and get into trouble with other teachers. Some concessions may be asked of other teachers. These teachers may be

more willing to excuse a student if they know you are considering their classes also. This concession on your part will build bridges for you and the students to use later.

If students cannot see an individual or gather data except on school time, they should be excused and carefully monitored to ensure they are indeed doing what they set out to do. This situation will occur very seldom and should not be made a regular practice.

It will be more productive if you can arrange for the school librarian to place all the pertinent books in one area or give your students a special work table for this period of time. However, this is also a good time for the students to become skilled in the use of the library.

You will find it useful to obtain phone books for the students' use, 3 x 5 cards, file folders, and boxes for containing the files. The students should be given every opportunity to succeed and very few roadblocks to their success. For most of them this will be their first real opportunity to become involved in their schoolwork on a community level.

As a teacher you will find it useful to record your daily observations of the progress of each class. This will give you a framework for observation and progress while also giving you a record to refer back to.

As the students progress through this unit, start to inform various media of the developments. Publicity often serves as a good incentive to students and can serve to facilitate cooperation from teachers and administrators.

ACTIVITY B:

This is the true meat of the unit. With all of their information at hand, the students must now put it into order and evaluate the best possible means of dealing with the cause of the problm.

The students should have a clear picture of the problem from both sides. They should be able to evaluate the situation and recommend an effective plan to deal with the problem. Set a definite deadline to prepare a final report to be presented to their classmates and the administration. This presentation should be detailed, clear, concise, and thorough. Be certain they understand they have to defend it in front of a highly partisan group.

It should be made clear that the students have the final say in choice of projects. However, they should also be aware that they may have limited resources and time.

The students should develop their own criteria for evaluation of the projects and be certain that everyone is aware of the criteria prior to presentation.

ACTIVITY C:

Using the criteria of the students, each group should be given a period to present its plan and explain and answer all questions about it. The class should be given a prepared outline of each project at the start of the presentation. With this outline, they can be more effective in their questioning. Be certain that all outlines are in by the first day of presentations. Each group should have an equal opportunity to present its plan without the other groups having an edge because of scheduling.

By Friday of the week you should have a plan selected and able to be implemented in the next week. This means that groups needing assistance from outside sources will have to arrange this on a tentative basis to be certain of all necessary aid.

Once the plan is selected, the plans not selected should be finalized and sent to the interested parties outside the school with a cover letter explaining the report. This cover letter should request a reply and an account of any action taken as a result of the report.

Concluding Note to Teacher:

This would also be a good time to ask students to write brief papers on their reactions to their experiences with the previous activities.

If your students have kept a journal of their experiences during the unit, this would also be a good time to have small group discussions about what they learned about themselves from others and what they learned about others.

If you go back to discussing the original problems, ask the students to rank them according to the following scales:

A. In order of impact on society

B. In order of difficulty to solve

C. In order that they would work on them

D. In the order that the class evaluated them

Now have the students compare the various rankings and determine how they have chosen to act on the problems they see affecting their community.

APPENDIX A: E.Q. INDEX

A number of different factors in every situation can be considered to add to or detract from a pleasant environment. In a wilderness setting these factors are readily identifiable — greenery, singing birds, colorful flowers — but in an urban setting the influential elements are often lost in a jumble of competing factors.

For this reason it would be helpful to quantify these parameters as to impact and number. A means to this end is a simple do-it-yourself environmental quality index. This index makes it possible for individuals or groups to rate, by a simple set of indicators, the quality of a given area. Using assigned values, we can systematically tour an area and determine aesthetic qualities, land use, planning and any of a number of otherwise nebulous qualities. Through this quantification we can hopefully arrive at a measure of environmental quality. The basic measurement involves a set of slides showing indicators of man's impact on the environment and the devices used to deal with or neutralize the total environment's effects upon man.

The Process:

Taking this basic set of indicators, the students move out on assigned routes in teams of 2 to 4 students. The standard team of four has one driver, two observers, and a recorder. Each team will cover their route twice, once in each direction. Each trip covers a *single* side of the roadway so as to eliminate duplicity. Given a five mile stretch, the team should be able to compute the E.Q. index in less than half an hour.

The assignment of positive and negative values in the following E.Q. index are arbitrary. If your students choose to assign different values, it is permissible. A possible preliminary activity could involve the organization and assignment of values to the indicators by the students themselves.

Calculations:

sum of total positive indicators = x
sum of total negative indicators = y
difference of (x-y) = z
z ÷ miles covered (single direction distance only)
z ÷ distance = E.Q./mile

PLUS		
car wash	cw	+1
truck	tk	+1
loan company	lc	+1
used car lot	uc	+1
traffic light	tl	+1
no smoking sign	ss	+1
divided highway	dh	+1
bank	bk	+1
drugstore	ds	+1
fireplug	fp	+1
taxicab	tc	+1
garbage truck	gt	+1
school bus	sb	+1
ambulance	a	+1
welfare office	wo	+1
trees	t	+1
flowers (each cluster)	f	+1
YMCA or YWCA	y	+1
sign flush with bldg.	sf	+1
no gas station (corner)	gs	+2
traffic control devices	td	+2
stop sign	st	+2
mail box	mb	+2
policeman	p	+2
Police call box	pb	+2
fireman	fm	+2
employment office	eo	+2
grass between sidewalk & curb	g	+2
bridge	b	+2
golf course	gc	+2
small business	bl	+2
shopping mall	sm	+2
supermarket	sk	+2
flag	fl	+2

MINUS		
bar	br	-1
hamburger stand	hj	-1
parking meter	pm	-1
2 people/car	c2	-1
railroad crossing	rx	-1
cobblestone streets (each block)	cs	-1
bumper sticker	bs	-1
dead tree	dt	-1
chuck hole	ch	-1
tow truck	tt	-1
billboard for environmental cause	be	-1
free running animal	fa	-2
uncovered garbage	ug	-2
expressway	e	-2
car in need of aid	ca	-2
junk on road	jr	-2
torn flag	tf	-2
litter (per cluster)	l	-2
neon sign	ns	-2
sign hanging over sidewalk	os	-2
graffiti	gf	-2
broken window	bw	-2
traffic accident	ta	-2
one person/car	lc	-2
all buildings on block over 10 stories	10b	-2
drive-in food spot	df	-2
no grass between sidewalk & curb	(og)	-2
refinery	r	-2

PLUS			MINUS		
civic group sign	cg	+2	damaged sign	sd	-2
tennis courts	tn	+2	excess traffic lights (more than 2/intersection)	(et)	-2
telephone booth	tb	+2	x-rated movies	xm	-2
non-leaded gas	nl	+nl	more than 3 garbage bags/house	3b	-2
pg movies	pg	+2			
compact car	cc	+2			
local shopping center	ls	+3	garbage (messy)	gm	-3
library	lb	+3	abandoned billboard	ab	-3
HUD sign	h	+3	noisy cars	nc	-3
urban renewal sign	ur	+3	luxury car	lx	-3
cemetary	c	+3	dump	d	-3
zoo	z	+3	empty bus (5 or less)	eb	-3
tot lot	tp	+3	parking lot	pl	-3
anti-litter sign	al	+3	weedy lot	wl	-3
home garden	hg	+3	abandoned playground	ap	-3
hospital	hp	+3	industry near homes (same block)	ih	-3
home for elderly	he	+3	heavy trucks near homes	ht	-3
park	pk	+3	plastic plants	pp	-3
freighter	fr	+3	dead animal	da	-3
more than 2/car	2c	+3	traffic controls	tr	-3
parking garage	pa	+3	parking controls	pr	-3
nursery	n	+3	billboard on side of building	bb	-3
school	s	+3	flashing sign	fs	-3
police car	pc	+3			
fire truck	ft	+3			
road being repaired	rr	+4	smoking car exhaust	sc	-4
low cost housing	lh	+4	moving sign	ms	-4
clinic	cl	+4	boarded-up abandoned home	bh	-4
bike rider	bi	+4			
sewage plant	sp	+4			
school zone	sz	+4			
pedestrian light	pd	+4			
police station	po	+4			
fire station	fi	+4			
church	ch	+4			
litter barrel	lt	+4			
smoke stack (no smoke)	so	+4			
recycling center	rc	+4			
playground	k	+5	more than 2 gas stns./ intersection	i	-5
sanitary landfill	(sf)	+5	abandoned car	ac	-5
more than 10/bus	(mt)	+5	abandoned home	ah	-5
			litter near litter barrel	ll	-5
			billboard	v	-5
			temporary sign	ts	-5
			water pollution (visible)	wp	-5
			abandoned building	q	-5
			smokestack (smoking)	ps	-5
			burning dump	db	-5

APPENDIX B: SIX BITS OF INFORMATION

Ciammatteo, Michael. *Investigating Your Environment* (Series). Portland, Oregon: U.S. Forest Service.

This activity can be accomplished in one class period if preliminary instructions are presented the day before. Six pieces of information are given separately to each member of a group of six. The information on each piece contains relevant and irrelevant data, but each piece is important in solving the problem (which is itself one of the information bits). They are then simply told to solve the problem.

As the groups work, observe the way they listen to each other and the level of confusion at first. They can tell what is on their information piece but they may not show it to anyone. Trust and organization are necessary, and they seem to develop naturally out of the beginning chaos.

After the given allotment of time for solving the problem, the solution may be presented or elicited from the class, especially if they were not generally successful. Ask questions which will help them focus on the group process:

What prevented you from solving the problem (at first)?

What enabled you to solve the problem (if solved)?

What procedures seemed to work best?

What is involved in real listening?

Did individuals hinder progress? In what way? Why: (all must participate in this experience)

Compare group procedure to scientific method.

A Lesson Plan for a Process and Problem Solving Approach to Learning

In this session we are concerned with techniques and processes of involving people in problem-solving activities. The success of these activities will be measured by the application of group interaction and problem-solving skill to the environmental investigation that we do later.

We are concerned, then, about how to transfer the process of involving people in environmental investigations.

Solving a Problem Through Group Interaction

Questions and Discussion

1. Have audience arrange themselves in groups of six, or have chairs grouped that way ahead of time.
2. Pass out the "6 Bits of Information" problem, one bit of information to each person.
3. Tell audience that there is a problem to solve, that they can tell their group what is on their paper, but that they must not show it to others.
4. As the problem solving session progresses:
   a. 5-8 minutes into the problem write on the board *Trust*

   b. 8-12 minutes into the problem write *Visual Display*

   c. 12-15 minutes into the problem write *Matrix*

Questions and Discussion (After all groups have finished)

1. What kept you from solving the problem to begin with?
2. What helped you to solve the problem later?
3. What were some characteristics of this problem-solving exercise? (List comments from group and discuss.)

The people who developed the problem-solving exercise feel that it contains elements of involvement that almost all groups go through; it also illustrates the way groups work together on common problems.

They hypothesized that the following things would take place during the problem-solving exercise: (Write each item on the board, or have a chart made up with each item listed.)

a. *TRUST* (will develop). They must trust that the instructor gave them a solvable problem. They must trust each other.

b. *RITUALISTIC LISTENING* (will take place). This is a kind of polite listening without really caring too much, because the data offered has no relevance at that time.

c. *REAL LISTENING* (will take place). This occurs when statements become more meaningful. (Data means something) This occurs when people interrupt and say, "Say that again!"

QUESTION: When in your group did you change from ritualistic listening to real listening?

When real listening occurs, two things will change:

Vision — Participants will begin to vision the listening by really *looking* at other people and by constructing a Visual Display (writing data in a common place). This will help them to make inferences and will mean that they don't have to listen to everything.

Space — Space factors will change because people will usually move closer together and will sometimes change places, or move around the table.

Using this type of activity at the beginning of a session is important for these reasons.

a. The problem could not be solved without the contributions of each person in the group.

b. People feel more committed to a session if they contribute by saying something, the earlier the better.

c. It's easier to talk to each other in a small group than to talk to one instructor in front of a large group.

d. This exercise illustrates that each person in a group brings information and skills that can be used by the entire group to solve common problems. THE PIECES OF PAPER REPRESENTED THE INFORMATION AND SKILLS THAT EACH PERSON BROUGHT TO THE GROUP.

We will be concerned in this unit with providing ways for each person to contribute knowledge, information and skills to the solving of common problems. The content and activity itself are not always most important. What is important is the idea that you can use different techniques to get people talking to each other and contributing as a group.

NONE OF US IS AS SMART AS ALL OF US. (Try printing this on the board during the prolem solving exercise)

B² 1

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

The Dinosaurs had Tom for a teacher during the third period.

Dick and Belinda did not get along well and so they did not work together.

During the first period the Team Leader taught the group that Harry liked best.

B² 2

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

All teachers taught at the same time and exchanged groups at the end of the period.

Each teacher liked a different group best. During the second period each teacher taught the group he liked best.

Each teacher taught every group during one of the first four periods of the day.

B² 3

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

The Freznel Elementary School Intermediate Unit had two teacher's aides, four teachers, and four instructional groups of students.

Each instructional group had chosen its own name.

Sybil was the Team Leader for the Intermediate Unit.

B²4

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

Your group members have all the information needed to find the answer to the following question. Only one answer is correct. You can prove it.

IN WHAT SEQUENCE DID THE APES HAVE THE VARIOUS TEACHERS DURING THE FIRST FOUR PERIODS?

Some of the information your group has is irrelevant and will not help solve the problem.

B²5

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

Belinda and Ralph disagreed about the best way to handle the Bombers, who always had trouble settling down to work.

Dick preferred to work with the Champs over all other groups.

Although the Team Leader had been at Freznel School for five years, this was a shorter period of time that the team members had been there.

B² 6

Although you may tell your group what is on this slip, you may not pass it around for others to read.

Information:

The Team Leader taught the Dinosaurs the second period.

Harry worked with the Bombers in the third period.

Sybil had been at Freznel School for a shorter period of time than had any of the other teachers in the Intermediate Unit.

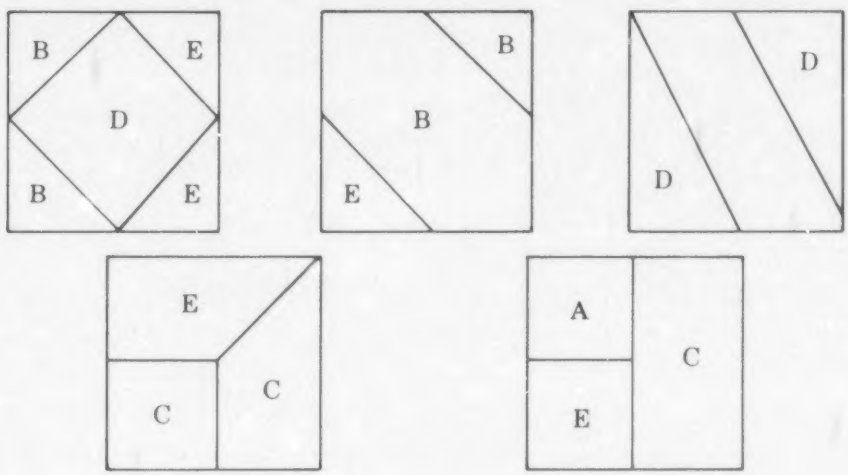
APPENDIX C:
COMMON SQUARES

The game centers around 5 identical squares which have been cut into 17 pieces. The 17 pices are divided up among five separate envelopes, A-E. They are divided in such a way that the five individuals must cooperate to reach the goal of 5 identical squares, one if front of each person. The rules are simple and few in number:

1. No talking at any time.
2. You can receive or give pieces to others in the group.
3. You may not take pieces from other players.
4. The game is over when each player has a 9" square in front of him.
5. There are five members to a group.

During a debriefing, ask these questions:

A. What did you learn?
B. When were you satisfied?
C. Were you aware of cadre resources?
D. Were there any signs of contempt?
E. Did you work as a unit?
F. Did you work well under pressure?
G. At what point did you feel good?



Put all the A pieces in Envelope A, all the B pieces in Envelope B, etc.

APPENDIX D:
PROBLEM SOLVING AT THE SOCIO-CULTURAL HIGH SCHOOL LEVEL

PROBLEM IDENTIFICATION

The problem: (very specific, type, place, degree) _____

_____

_____

_____

People involved: (principally) _____

Positive Factors	Negative Factors
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____

Insitutions Involved: (principally) _____

Positive Factors	Negative Factors
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____

Resources we will need: (All)
School and Community

1. _____	13. _____
2. _____	14. _____
3. _____	15. _____
4. _____	16. _____
5. _____	17. _____
6. _____	18. _____
7. _____	19. _____
8. _____	20. _____
9. _____	21. _____
10. _____	22. _____
11 _____	23. _____
12. _____	24. _____

PROBLEM SOLVERS

1. Title: (Mayor, Councilperson, etc.) _____

2. Job Description (What does the position require): _____
   _____
   _____
   _____

3. What types of problems does the job require him to solve?
   _____
   _____
   _____
   _____

4. How long does he have to solve problems?
   _____
   _____
   _____
   _____

5. How long must his solutions last?
   Days: _____ Hours: _____ Weeks: _____ Years: _____

6. What is his primary concern when solving problems?
   People _____ Money _____ Politics _____
   _____ Durability _____ Flexibility _____

7. To whom does he answer? _____
   _____

8. Is his method the most effective? _____
   _____

9. Does he follow our 6-step problem-solving format?
   Yes _____ No _____
   Explain: _____
   _____
   _____
   _____

Problem Solving High School

THE PROBLEM (2)

Symptoms

1. _____
2. _____
3. _____
4. _____
5. _____

Root Cause(s)

1. _____
2. _____
3. _____

Possible Solutions (All practical solutions)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Ranking of Solutions (Best to Worst)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Our Solution (Explain choice)

_____

_____

_____

_____

REFERENCES

TEACHER DATA Books

Teacher's Note:
The following publications would, constitute a nucleus of a data source collection for your school library. Secondary students should be able to use these sources with little difficulty. Junior High School teachers may find it necessary to simplify and summarize the relevant data for their students.

Congressional Quarterly Service. Congressional Quarterly Guide to Current American Government (Yearly Spring and Fall editions) Congressional Quarterly, Inc., Washington, D.C., 1974.

Economics Research Division, Development Department, State of Ohio. *Statistical Abstract of Ohio*, Columbus, Ohio, 1969.

Office of the Federal Resister, National Archives and Records Service, General Services Administration. *U.S. Government Manual*, USGPO, Washington, D.C., 20402 ($4.00 - annual editions).

Nader, Ralph Congress Project, (Series). *Citizens Look at Congress*, (Individual Profiles available for U.S. Senators and Representatives), Grossman Publishers, Washington, D.C. ($1.00 each).

Rose. Albert H. *Ohio Government - State and Local.* Fourth Edition, Kendall/Hunt Publishing Company, Dubuque, Iowa. 1974.

Skinner, Richard. *Ohio Socioeconomic Data Book.* Market Research Associates, 207 Valley View Drive, Kent, Ohio. 1972.

U.S. Bureau of the Census, *Census of Housing: 1970, General Housing Characteristics*, Final Report, HC (1) - 237 Ohio. USGPO, Washington, D.C. 1971.

U.S. Bureau of the Census. *Census of Population: 1970, General Social and Economic Characteristics*, Final Report PC (1) - C37 Ohio. U.S. Government Printing Office, Washington, D.C. 1972. ($4.25).

U.S. Bureau of the Census. *Census of the Population: 1970, Number of Inhabitants in Ohio.* PC (1) A37 Ohio, USGPO, Washington, D.C. 1971.

U.S. Bureau of the Census. *County and City Data Book, 1972.* (A Statistical Abstract Supplement). U.S. Government Printing Office, Washington, D.C. 1973. ($12.50)

U.S. Bureau of the Census. *Historical Statistics of the United States, Colonial Times to 1957.* USGPO, Washington, D.C., 1960. Supplements are also available.

U.S. Bureau of the Census. *Statistical Abstract of the United States: 1973*, 94th Edition. USGPO, Washington, D.C. 1973. ($6.30) (Yearly editions available).

Warren, Roland L. *Studying Your Community.* The Free Press, New York, 1965.

FUTURISM

"Time is just the stream I go a-fishing in," Henry David Thoreau, perhaps America's first true conservationist, said once. People have always been anchored in time, spending their allotted "three-score and ten" at a specific point in place and time. Therefore, many people have always stressed the "here" and "now". It is pleasant to take life as it comes, like the mouse in Robert Burns famous poem, rather than to look back on "prospects drear" or to look to the future with fear. It is for this reason, perhaps, that futurists have not always been treated with a great amount of generosity. The time has gone, however, when a person can live only in the present. The exploding population, the energy crisis, and just generally "what man has done to man" have made it evident indeed, that "no man is an island, entire of itself". We must think of things, not in terms of the pleasure they can give us, but in terms of the possible negative consequences.

In our changing world, it is difficult enough to keep up with day-to-day alterations. The tasks of futurists seem impossible when faced with the concept that the future, in a way, is closer than ever, that things that were predicted almost yesterday are accepted today and will probably be out-of-date as early as tomorrow. But the stakes in the game are too high to give up in frustration. It is more important today than ever to make predictions, hopefully accurate ones, in order that we may better prepare for what tomorrow brings.

When time is seen as a continuum, which it is, it becomes obvious that one does not really study the "future" as distinctly separate from the past and the present. It is necessary to see the future in relationship to the past and to the present. Then, it is hoped some fairly accurate predictions may be made.

The futurism unit, then, will begin with what one might call "the future as the past," that is, the future as it was predicted by writers in the past. Life was pretty simple, once upon a time. (Most people did not have to worry about the future because it was pretty much laid out for them.) Free from the problem of making too many choices, the person settled down in the life style expected of him. "Choosing a career" was virtually unheard of. The man, if born into an average family, would work on a farm or (later in time) perhaps in a factory. The girl he married would be chosen from among a small number of possible choices. He would have as many children as God willed him to, birth control, as we think of it, being virtually unknown until recent time. Transportation and communication consisted mostly of how far one could walk or ride on horseback and how much one could communicate directly, either by conversation or by letter. Such a life has its attractions. Yet probably none of us would choose to live in those times, even if given a choice.

INSTRUCTIONAL OBJECTIVES:

After finishing the unit, the student will:

1. Know what past writers have predicted about the future.
2. Know basic ideas of present-day futuristic writers.
3. Know many of the technological and sociological changes he can expect in the future.
4. Understand the problem of the rapidly increasing rate of change.
5. Be able to estimate the future significance of present trends.
6. Be able to predict consequences of present trends.
7. Be aware of the decision-making processes that will need to take place if we are to use future discoveries to their best advantage.
8. Be aware of the sacrifices that may have to be made in the future if we are to have a better world.
9. Have developed a positive attitude toward the future.
10. Be able to formulate a life plan that will prepare him for the future.

CONTRIBUTORS TO THE DEVELOPMENT OF THIS UNIT

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Editor ..... Laurence E. Pennell
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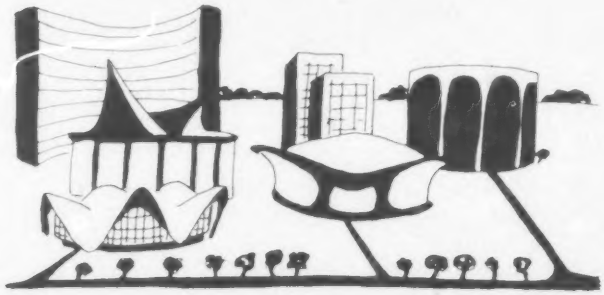
EXPERIENCE #1:
THE FUTURE AS THE PAST

OBJECTIVE:

The student will know what past writers have predicted about the future.

Teacher's Note:
See Appendix A.



ACTIVITY A:

Ask the students to formulate ideas about the following questions in relation to a certain period of time (i.e. ten years in the future, twenty years in the future).

1. What do you see happening in that time period?
2. Where do you place yourself in that time period?
3. What job will you be doing in that time period?
4. What will you look like in that time period?
5. What will the styles be in that time period? (clothing, transportation, money, etc.)
6. What will the stores be like in that time period?

ACTIVITY B:

Assign students to read a science fiction book. Have the students choose the book, if possible.

a. Report on the books.

b. Have the students consider the problems involved in their books. What predictions have the authors made? What sort of society have they envisioned? What warnings have they given? Do they think of the future positively or negatively? Have any of the predictions come true? (Concentrate on society problems, not technological advances.) For example, has the federal government taken over the role of Big Brother as seen in *1984*? Does wire-tapping violate the individual's right to privacy? Some good books about the future are Wells' *When the Sleeper Wakes* and Bellamy's *Looking Backward*.

ACTIVITY C:

Assign students to read short stories of science fiction from several books that will be found in local school library, such as *Eco-Fiction* or *Asimov's Mysteries*. For a class with reading problems the teacher could have some of the better students put selected stories on tape for the rest of the class to listen to.

ACTIVITY D:

Have students seek out (from friends, etc.) science fiction magazines and comic books of the past. Follow the suggestions given for number one. Ask: Have authors seen societal changes along with technological changes, or do they concentrate on technological change as if there were no corresponding societal change? How about the institutions of marriage and procreation, religion, and government? Have authors predicted the population explosion? Ecological concerns? The energy crisis?

ACTIVITY E:

Have students do research into Orson Welles' radio dramatization of *War of the Worlds*. The teacher might play the record first to generate enthusiasm for the following questions. (See the bibliography for record citation.)

ACTIVITY F:

Encourage students to watch science fiction movies when offered. Are the predictions in *Planet of the Apes* feasible, for example? Why or why not? How serious are the suggested consequences? Other possible movies might include these:

2001: Space Odyssey
Fantastic Voyage
Dr. Strangelove
Seven Days in May
Fail Safe
The Andromeda Strain
Soylent Green
Farenheit 451
Genesis II
Sleeper
War of the Worlds
20,000 Leagues Under the Sea
etc.

ACTIVITY G:

Have students write their own short stories, tell short stories or give short dramatizations of science fiction. The short stories might be read by the class and then the probability of such things happening discussed with the class. Do societal changes reflect the technological changes as described?

EXPERIENCE #2:
THE FUTURE AS THE PRESENT

OBJECTIVE:

The student will be able to examine current trends and determine their effect on our society in the future.

Teacher's Note:

The purpose of this section is to allow the students to examine current trends in modern day society that are an outgrowth of the social and technological revolutions of the twentieth century. The initial phase should involve a thorough research into the concepts, facts, and statistical data relevent to the topic under investigation. The analysis and interpretation of students' researched information should focus on short-term and long-term advantages or consequences and how they will affect our society. As Toffler has pointed out in his book, Future Shock, *society is experiencing change in all sectors and the rate of change is rapidly accelerating. The cumulative and interactive effects of change and its rate of acceleration may bring forth a world far different from the one already in existence and the one which we are educating our current generation to adapt to and exist in. The topics suggested in this section are not meant to be inclusive. It is expected that many additional topics for investigation will be generated by your own students and provide a meaningful vehicle to achieve the objectives of this section.*

It is hoped that an outgrowth of each activity would include the development by the students of new plans, patterns, blueprints, models, structures, prototypes, or other types of simulations and representations designed to cope with and insure survival of our spaceship earth.

ACTIVITY A: FUTURE MAN

1. Names or numbers

A way of introducing this section would be to have each of the students pick a 7 or 8 digit number for themselves and then use only the numbers instead of names during class time.

Questions:

a. Would you like to live in a computerized society?

b. Could we eliminate the use of titles (i.e. Miss, Mrs., Mr. or Ms.)?

c. What would be the consequences in this type of society?

2. Alternative activity for the beginning of Experience #2.

Have students pick a topic from the following list for later discussion:

- Water pollution
- Air pollution
- Noise pollution
- Energy crisis
- Land erosion
- Population explosion
- Future man
  - Man's growth
  - Man's development
  - Man's longevity
- Genetic selection
  - Genetic characteristics
  - Sex & reproduction
- Transplants
  - Cyborgs
  - Clones
- Fifteen years from today
  - World government
  - Survival of the fittest
  - Popular vote
  - Better race
- Future family
  - Test tube babies
  - Self image of mothers and fathers
  - Population zero
  - Birth control
  - Polygamy
  - Temporary marriage
  - Contract marriage
- Future after 2,000 A.D.
  - New life forms
  - Nature
  - Types of human beings
- American life style
  - Press
  - Talk
  - Hair
  - Housing

ACTIVITY B: MAN'S GROWTH, DEVELOPMENT, AND LONGEVITY

The future size and form of man will undergo change and adaptation as it has in the past. A point of departure for study would be to have the students investigate the changes in average height, weight,

and body measurements of American men and women from colonial days to the present. Based on the researched data, what predictions could your students make about these factors in the year 2000 A.D. and 2050 A.D.? What factors are responsible for these changes? Students might also want to do a cross-cultural comparison with a developing society whose nutritional levels are improving and one whose levels are declining.

Students may also want to study man's intellectual growth in the United States. How is it measured? How accurate are the measurements in the 1960's and 1970's. Topics such as the national decline in average test scores on the Scholastic Aptitude Test and the College Entrance Examination Board examinations, Arthur Jensen's research on the effects of heredity versus environment upon intelligence, or the use of drugs to enhance intellectual and memory capacity could become starting points.

Students might also investigate the average life span of both males and females. Comparisons can be of a historical or cross-culture nature. Investigation is suggested into the factors responsible. The effects of new medical, surgical, and other types of research upon the longevity of the individual could be another topic. The social, psychological, political and economic impact of an older population in this country is yet another. Charts and graphs on many aspects may be prepared by the students, as well as predictions based on current statistical trends. The activity could be expanded into a full population study.

ACTIVITY C: GENETIC SELECTION

Will the day ever come when the parents of the state can create children with certain desired genetic characteristics or of a certain sex? Genetic research is progressing rapidly in this direction. Have the students investigate the research in this area. What genetic factors are desirable and undesirable from various points of view: typical parent, U.S. Government, Russian Government, etc. What would be the consequences of genetic selection from religious, moral, political, economic, and social points of view? Might this create imbalances in society (too many males vs. females, too many intellectuals vs. manual workers)? Who should make the decisions about this? Parents? Geneticists? Government? Would genetic selection be superior to natural selection? What effect would genetic selection have on the areas of crime, mental health, birth defects, emotional and mental retardation, etc.?

A question the students might be asked: Who makes the decisions on genetic selections? This might also be a time for a role playing exercise on using genetic selection in producing a society.

A research project or debate:
Diet influences size.

ACTIVITY D: TRANSPLANTS, CYBORGS, AND CLONES

Artificial devices extend the capabilities of man and achieve powers above his natural ones. We can create a substitute for a lost or useless part. This came partially from the desire to make something more than he naturally was (for example, De Vinci's idea of strapping artificial wings to man's arms) and from rebuilding handicapped persons with mechanical contrivances, such as crude ear trumpets. There are three broad areas in the development of artificial man: (1) artificial limbs, organs, and other parts, (2) transplantation of living tissues and organs, and (3) duplication and alteration of man's hereditary genetic structure. Until the 1940's, the only artificial organ in use was the iron lung, which worked from outside the patient. In 1945 a Dutch doctor built the first workable artificial kidney. Other developments were the pacemaker and kidney transplants from a human donor. The ultimate in transplants is the transplant of the brain. A monkey's brain has been kept alive for five hours in another monkey. It is here that the mind boggles at the possibility when one thinks of possible consequences of such actions. Students may wish to investigate the wide range of artificial limbs, organs, and other parts that are currently in use and those which are currently being researched and developed. A similar study can be conducted about the various aspects of transplanting living tissues and organs.

A question here might be: When is a donor really dead?

When does man cease to be a man and become a machine? If we were to replace a man's body parts, one by one, at what point would he become a cyborg (a humanized machine, a mechanized human)? What if everything but a man's brain were mechanical? Would he be a man? What if his brain were mechanical, but his remaining parts weren't?

To investigate these questions, your students may wish to refer to a book called *Cyborg: Evolution of a Superman* (see bibliography) or utilize the *Readers' Guide to Periodical Literature* for recent articles. Some of your students may also enjoy reading a play titled *R.U.R.* (See bibliography.)

Introduce the class to "cloning," the making of carbon copies of a particular person. In cloning, the genetical endowment is identical to that of the donor. Explain that successful experiments in cloning have already taken place and that one expert has predicted that within 15 years it will be tried on humans.

Assign members of the class to find out more about this from current magazine articles and books. Have these members direct discussion on advantages and disadvantages of cloning. Have the class do an opinion poll. Assume that the world becomes overcrowded and fails to control itself naturally, necessitating some societal action. Who should live and who should die? What characteristics should survivors have? The strongest? The most intelligent? Perhaps a lottery would be an idea. Who should decide? The world rulers? Popular vote?

As a project the teacher could assign the class to try to develop a criteria for what they feel would be a better race, describing improvements and perhaps drawing some. When they have finished, ask

whether they foresaw any problem if everyone were alike, with great strength, great intelligence, etc.

ACTIVITY E: THE FUTURE FAMILY

Teacher's Note:
First introduce the students to some possible consequences for the family of our rapidly-changing society. Perhaps babies will be born in a laboratory jar. If so, what does the class foresee happening to the roles of mother and father? Would the self-images of the mother and father alter? If it becomes possible, as now seems likely, for a child to have more than two biological parents, what happens to the concept of parenthood? Does it die off completely or change drastically?

It is very possible that many more couples will remain childless or postpone having families, perhaps waiting until the individual's work career is over. What problems can the class see to having older and older parents? What advantages?

If a system of "professional parents," certain people selected to raise the children of the society, should ever come into effect, what would its consequences be? Could the "professional parents," being better trained, do a better job of raising children than natural parents do?

Will monogamy disappear? Will the bars on polygamy be lowered? If so, what results can we expect? Would it be more advantageous to the male, to the female, or to both or neither?

Introduce concepts of "aggregate" families, temporary marriage, and serial marriage. Aggregate families are families based on relationships between divorced and remarried couples (like television's The Brady Bunch), in which the children of both parents become part of the family. Temporary marriage occurs as life changes come quicker and divorce and separation rates rise. The partners then find new partners whose developmental stage matches their own. Couples, Toffler says, will wed, knowing that their relationship may quite possibly be short-lived. Serial marriage is a pattern of successive temporary marriages. Should divorces keep getting easier? How about a system of "semi-siblings." Semi-siblings are whole clans of children born to their successive sets of parents. These may turn out to be like cousins. This could create problems: should they be allowed to marry, for example?

1. Have the students investigate the research activities related to the creation of life in a test tube. Have them consider the moral, ethical, religious, social, psychological, and political consequences of successful research in this area. If life forms could be created that approximated human beings, what function would they serve? How would they adapt? How and by whom would laboratory life forms be raised and educated? Who would make the decisions about how many life forms would be produced; what characteristics they should possess; and what functions they should perform? Are life forms of this nature to be considered humans, citizens, slaves, or a type of draft animal that has reached a higher level of development?

   Based on the results of their investigation, students could utilize their imagination and write a fictional and futuristic short story.
2. Students can conduct a research project on marriage and divorce. Changes in family structure and marriage patterns can be located in current periodicals and sociological resources in the classroom or school library. Raw data can be developed from local resource people and agencies. Census data is also a fertile area for the location of information. Concepts such as the extended, nuclear, and aggregate families, as well as temporary and serial marriages, could be studied. Interviews and community surveys will also be valuable. Two extremely valuable resources are currently available for use from Allyn and Bacon, Inc. The titles are (1) *Family Form* and *Social Setting* and (2) *Divorce in the United States*. Student pamphlets and instructor guides are both available. Another available resource is the *U. S. News & World Report* issue for April 22, 1974, pages 43-45.
3. Students may wish to study family size and the reciprocal relationship between families and society. What are the long term consequences of larger and/or smaller family units upon the environment and our supply of energy and resources? Students can research the trend in family size and its relationship with societal population growth and non-growth. What are the personal and societal values which affect childbearing? Are the values changing in today's society? How does family size and population relate to the quality of life in the United States? A resource for the teachers is available from Allyn and Bacon, Inc. It is titled *Family Size and Society* and includes a student pamphlet and instructor's guide.
4. Students may wish to investigate the changes and implications that are associated with child rearing in the United States. How successful are our current practices? Have parents abdicated their responsibility for rearing their own children? Are child rearing methods too permissive? What are the roles of churches, schools, day-care centers, babysitters, etc. in relationship to the growth and development of children? What factors (instability, mobility, divorce, etc.) could be identified as the source of problems in child-rearing practices? Students may wish to develop their own criteria for the rearing of their own children in the future. Value clarification techniques could be of use for this activity.

ACTIVITY F: FUTURE LIFE STYLES

Lifestyles of Americans are being affected as a result of changing housing patterns. Have the students investigate these changing patterns and their impact on the life styles of individuals and families. Patterns that could be investigated include these:

a. the increase in the number of people living in high-rise apartments.
b. the increase in the number of people living in condominiums.
c. the rise of planned communities such as Reston and Columbia.
d. the flight of the urban population to the suburbs, small towns, and rural areas.
e. the development of rural and urban communes.
f. vertical urban communities where all facilities (parking, housing, shopping, and jobs) are located in the same building complex.
g. mobile home living.

What impact are these changing patterns having on lifestyles? What are the advantages, disadvantages, and long-term consequences of these changing patterns? What are the quality of life factors that are causing these changing patterns?

Students may wish to investigate the impact of transportation on lifestyles and the environmental consequences of various types of transportation. Lack of access to transportation and the limited ability to afford transportation affects the poor in this country. The lack of access to inexpensive modes of transportation affects their ability to go outside of their immediate residential areas to seek and hold higher paying jobs, limits their opportunities to seek better educational facilities for their children, and affects the family budget by restricting them in their purchases of lower priced goods outside their neighborhoods. The recent energy crisis points out the impact of transportation on our jobs, our family budget, recreation, vacations, and our freedom and lifestyle in general. To what extend are we willing to develop means of transportation that are environmentally sound and economically palatable? What changes in our own lifestyles will result from either voluntary or forced acceptance of different modes of transportation?

Students may wish to investigate the impact of occupations upon lifestyles. Three major aspects of the investigation would include (1) changing educational requirements for new and existing jobs, (2) the retraining and adjustment of workers whose occupational categories become obsolete and (3) the inability of workers to work. How do people adjust to changing occupational situations? How does a person feel and what can he do if he finds out his job skills are no longer needed? How can students plan ahead to insure themselves that they will have the skills and knowledge necessary for jobs in the future? Have the students investigate the increase in occupation category titles during the previous five years. What are the government and industry predictions concerning manpower needs in those categories during the next decade? The area of research which may surprise students would be a comparison of status rankings and average income of a wide spectrum of occupation.

APPENDIX A: BACKGROUND INFORMATION FOR TEACHER

As some of their "modern" problems arose, some of the writers tried to envision a more satisfying world, a "utopia." One of these was *Walden Two*, by B. F. Skinner (1948), in which the author visualized an experimental community of about 1000 people living on farmland somewhere in the United States. Skinner's society featured a system of labor credits, with which the individual paid for the goods and services that he used. Babies were kept in nurseries away from their mothers, and as they grew, spent their time in dormitories rather than with their parents. There was no college, and marriage and childbearing could take place at the age of sixteen or seventeen.[1]

Others tried to look into the future to see what problems would arise, Their purpose was not to predict accurately what *would* happen but to warn man about what *could* happen if certain trends continued.

Brave New World concentrated on the mass production of identical human beings. Individuality became a thing of the past. The brave new world's motto was "Community, Identity, Stability." The babies were conditioned during their childhood to their preordained classes in society, of which the two extremes were the Alpha Plus Intellectuals and the Epsilon Minus Morons.

People of the brave new world were lectured by the World Controllers on the horrors of the old-fashioned family life. The use of the words *mother* and *father* was strictly forbidden; everyone was supposed to belong to everybody else.

The problems of such a society brought about frequent use of a drug called *soma*, which induced forgetfulness. Everything was mass-produced. The government's theory was that beauty causes happiness and this instability. Science was dominant, although even it was stifled at a certain point. Art was stifled entirely, and religion was kept under severe restraints (so that it could not cause instability). Human emotions end in tragedy in the brave new world.[2]

1984 dealt with television, thought control, the big lie, and mass hysteria. The book was set in a country called Oceania, which had no laws, but which nevertheless had certain "understood" crimes, one of which was writing slogans against the highest government official, Big Brother. Big Brother's face appeared throughout Oceania on posters, and citizens were reminded constantly that Big Brother was watching every move.

History was rewritten when predictions proved false and was changed to agree with the wishes and goals of the Party. Each contained a two minute "hate period," in which the enemy of the party appeared on the telescreen. Sex was considered a Party duty; its purpose was procreation. An eleborate system of spying was carried out, and some Party members had the function of seeking out members of questionable loyalty and encouraging their disloyalty; then springing a trap on them.[3]

Science fiction as we know it seems to have had its beginnings with the works of Jules Verne and H. G. Wells in the 1800's. Verne dwelt on the possibilities of invention and technology and at times interrupted his story to give readers a long lecture on science. Wells, however, concentrated on the story and invented bug-eyed monsters (BEMS), time travel, space travel, dangerous discoveries (including invisibility), and outrageous experiments. Verne also wrote of space travel, but from an engineer's viewpoint rather than from a theorist's.

In 1911, Hugo Gernsback's "Ralph 124C 41+", published in *Modern Electrics*, talked about the invention of three-dimensional color TV, restored its heroine to life by use of a deep-freeze technique, and featured communication by video-telephone.

In a 1941 novelette, Robert A. Heinlein wrote of a United States effort to develop atom bombs. In the book, the weapons were developed and stopped World War II. At this time atomic weapons were only a theoretical possibility.

In 1942, Lester Del Ray-s *Nerves* concerned a future society in which he showed chilling effects of what could happen if atomic plants got out of control. In 1944, Cleve Cartmill and John Campbell got into trouble with military intelligence officers when they wrote surprisingly accurate atomic information in a science fiction magazine called *Astounding*. Luckily they were able to demonstrate from past issues of science fiction magazines that atomic weapons had been predicted much earlier.

Other ideas envisioned by science fiction writers *before* they happened were orbital flight, supersonic planes, jet propulsion, and computers. In most science fiction, writers mention the potential consequences of these inventions. Often these writers take a gloomy view of the future. J. G. Ballard's *Billenium* explores the consequences of an exploding population. In his story, each human being is eventually restricted to living quarters no larger than five square feet. *Not Counting Bridges*, by Robert L. Fish, predicts that the entire surface of the United States will consist of concrete highways and parking lots by 1998.

Other problems explored by science fiction include fear of identity loss (in Heinlein's *The Puppet Masters*), the disastrous effects of conformity (in Robert Scheckley's *The Academy*), drug addiction encouraged by the government (in Philip Dick's *The Three Stigmata of Palmer Eldritch*), and the offer of technological aid by Earthmen to beings from another planet (*The Helping Hand* by Paul Anderson).[4]

FOOTNOTES

[1] B. F. Skinner, "Walden Two," *Designs of Famous Utopias*, ed. Donald J. Gray and Allan H. Orrick (New York, 1959) pp. 55-62.

[2] Aldous Huxley, *Brave New World*.

[3] George Orwell, *1984*.

[4] Ibid.

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Schools participating in the pilot program between February 1, 1974 and March 31, 1974

Akron City Schools
- Buchtel High School
- North High School
- Goodyear Junior High School
- Jennings Junior High School
- Kent Junior High School
- Perkins Junior High School

Chardon Local Schools
- Chardon High School
- Chardon Middle School

Cleveland Diocesan Schools
- Byzantine Catholic High School
- Cleveland Central Catholic
- Cathedral Latin High School
- Lake Catholic High School
- Notre Dame Academy
- St. Edward High School
- St. Joseph Franciscan School
- St. Justin Martyr
- St. Mary School
- St. Michael School
- St. Patrick School
- St. Richard School
- St. Rose School
- Trinity High School

Cleveland Heights/University Heights City Schools
- Heights High School
- Monticello Junior High School

Columbus City Schools
- Central High School
- Eastmoor Senior High School
- Linden McKinley High School
- Mohawk Senior High School
- North High School
- Eastmoor Junior High School
- Everett Junior High School
- Linmoor Junior High School
- Starling Junior High School
- Yorktown Junior High School

Euclid City Schools
- Euclid Senior High School
- Forest Park Junior High School
- Shore Junior High School

Geneva Area City Schools
- Geneva Area Senior High School
- Geneva Area Junior High School

Kirtland Local Schools
- Kirtland High School

Ledgemont Local Schools
- Ledgemont High School

Madison Local Schools
- Madison High School
- Memorial Middle School
- Red Bird Middle School

Mayfield City Schools
- Mayfield High School

Painesville Local Schools
- Riverside High School

Perry Local Schools
- Perry High School

West Geauga Local Schools
- West Geauga Junior High School

Willoughby-Eastlake City Schools
- North High School
- Kennedy Junior High School
- Willowick Junior High School

Youngstown City Schools
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- Haynes Junior High School
- Hillman Junior High School
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